DRAFT ENVIRONMENTAL IMPACT STATEMENT

FARIBAULT ENERGY PARK PROJECT

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Executive Summary

Faribault Energy Park, LLC, is a limited liability company owned by the Minnesota Municipal Power Agency. MMPA is a joint power agency of the state of Minnesota consisting of eight member cities, including Anoka, Arlington, Brownton, Chaska, Le Sueur, North Saint Paul, Olivia and Winthrop, organized for the purpose of providing its member cities with electricity. Faribault Energy Park is proposing to construct and operate a combined-cycle electric generating facility that will be fired primarily with natural gas but also with fuel oil that will be capable of producing 250 megawatts (MW) of electricity. A Site Permit from the Environmental Quality Board is required to build a power plant of the size and type proposed by Faribault Energy Park.

Faribault Energy Park applied to the Minnesota Public Utilities Commission in 2002 for a certificate of need for a new large power plant. On August 8, 2003, the PUC issued a certificate of need to FEP for a 250 MW power plant fired with natural gas and fuel oil. The electricity to be generated by the new facility will be provided first to the member cities, and any surplus will be offered on the wholesale market.

The proposed power plant is what is called a combined cycle plant. A combined cycle plant is one that generates electricity both from the use of the hot gases that result from combustion of natural gas or fuel oil and from the steam that can be created by using the hot gases to convert water to steam. The first part of the plant utilizes what is called a combustion turbine generator. This is the machinery that utilizes the fuel to generate electricity. The exhaust from the combustion turbine is then directed through a system of densely packed tubes containing water. The hot exhaust converts the water to steam, and the steam is used to drive a steam turbine/generator. This equipment is called a heat recovery steam generator. Because electricity is generated in two phases, combined cycle plants are more efficient than simple cycle generators which only use a combustion turbine to generate electricity.

Under the Power Plant Siting Act, Minn. Stat. §§ 116C.52 to 116C.69, and the rules adopted by the EQB for administering the permit program, Minn. Rules ch. 4400, the EQB is required to prepare an Environmental Impact Statement on a project of this size and type. The initial step in preparing an EIS is to hold a public meeting to provide the public with an opportunity to suggest alternative sites and environmental impacts that should be addressed in the EIS. In this case a public meeting was held in Faribault on October 15, 2003. On October 31, 2003, the EQB Chair issued a Scoping Order identifying the sites and impacts that would be addressed in the EIS. Nobody from the public suggested any other possible sites for location of the power plant, nor did the EQB have any additional sites to suggest. Therefore, the only sites evaluated in this EIS are the two sites included in the application.

Faribault Energy Park has selected a site north of downtown Faribault, approximately 2.5 miles, on the west side of Highway 76 and south of 170th Street West, as the preferred site for the new power plant. Because the Power Plant Siting Act requires an applicant

for a power plant of the size and type proposed here to also include an alternative site for the facility, FEP has identified in its application a second site contiguous to the preferred site. Both sites are located in Rice County within the city limits of Faribault. The area surrounding both sites contains agricultural land and a few farmsteads. The project will require about 37 acres.

There is a surface water drainage way that runs through the site that is a tributary to the Cannon River. No construction activity will occur in the drainage way and no discharges to the drainage way will occur. No impacts on the Cannon River, which is 2.5 miles away, are anticipated. A small amount of clearing of tall vegetation, along the drainage way, may be necessary to accommodate onsite transmission lines.

Water for operations at the proposed project will be obtained from on-site production wells. The wells will extract approximately 2 million gallons per day from the underlying Jordan Formation. A groundwater appropriation permit will be required from the Minnesota Department of Natural Resources (MDNR).

FEP selected the Faribault area site because there are a natural gas pipeline, a petroleum product pipeline, and an electric transmission line corridor within a short distance of the site. FEP will need a new short 16 inch underground pipeline connecting to the existing Northern Natural Gas mainline that runs through Rice County. FEP will also need to connect to a nearby high voltage transmission line. There are two options under consideration for connecting to the transmission grid: (1) a rebuild of the existing Lake Marion-NE Faribault 115kV line to a higher capacity, and (2) the addition of a new 161 kV circuit from the facility to either the South Faribault substation or to a new site further south along the South Faribault-West Owatonna 161 kV line. Both the new pipeline and the new transmission line will require their own permits, and FEP has elected to apply for those permits in proceedings separate from this one. A connection to a petroleum pipeline is not anticipated, and instead, FEP intends to store fuel oil onsite in above ground storage tanks.

The major environmental concerns with a power plant of the size and type proposed here relate to the handling of wastewater and the emission of air pollutants. The plant will have two wastewater discharges. One is noncontact cooling water. FEP will discharge about 500,000 gallons of wastewater per day. The main pollutant of concern is the temperature of the wastewater, which will be at least 5 degrees above the ambient receiving water temperature. FEP proposes to build an artificial wetland on the preferred site to which the wastewater would be discharged. On the alternative site, the wastewater would be discharged to the drainage way because there is not space to construct an artificial wetland.

The other wastewater stream is the sanitary waste from the onsite restroom facilities. This stream is about 3,000 gallons per day. This wastewater will flow to an onsite septic system at either site.

The combustion of either natural gas or fuel oil will result in the creation and emission of a number of air pollutants, including sulfur oxides (SO_X), nitrogen oxides (NO_x), particulate matter (PM_{10}), carbon monoxide (CO), and volatile organic compounds (VOC). The plant will have the potential to emit more than 100 tons each of SO_X and NO_x and more than 400 tons each of PM_{10} and volatile organic compounds over a year's time. The plant has the potential to emit about 35 different air toxic chemicals, including such chemicals as benzene, formaldehyde, and heavy metals. The plant has the potential to emit six pounds of mercury per year and a small fraction of a pound of lead.

At either site FEP will install the Best Available Control Technology to control emissions, including low NO_x. combustors and a selective catalytic reduction system for NO_x control, and FEP will comply with the lowest achievable emission rate established under the Federal Clean Air Act. The pollutants will be emitted out a stack that is 170 feet tall. FEP has used standard U.S. Environmental Protection Agency and Minnesota Pollution Control Agency modeling protocol to determine that the air quality impacts for all emissions from the facility are below the Significant Impact Levels established by the EPA.

The project is not expected to exceed any applicable noise limitations. The ambient noise sources at the proposed site now consist of intermittent traffic along the local roads, traffic noise from Interstate Highway 35 and State Highway 76, small aircraft noise, and bird and insect noise. Average background sound levels range from 54 to 56 dBA. The predicted sound levels during operation at the Project site range from 62 to 65 dBA at the boundary of the developed portion of the site and 50 dBA at the nearest receptor.

There are no threatened or endangered species that will be impacted by the project at either site, and there are no archeological or other cultural features that will be impacted.

The project will require about 250 workers during construction, and will permanently employ 13 to operate the plant and perform routine maintenance. The project capital cost is 150 million dollars.

1.0 Introduction

On November 19, 2002, Faribault Energy Park, LLC (FEP) filed an application with the Minnesota Public Utilities Commission for a Certificate Of Need (CON) for construction of a 250 MW, dual-fuel fired, combined cycle large electric power generating plant (LEPGP) in Rice County, Minnesota. FEP is owned by the Minnesota Municipal Power Agency (MMPA) which provides member cities with energy. The eight member cities include Anoka, Arlington, Brownton, Chaska, Le Sueur, North Saint Paul, Olivia and Winthrop. MMPA also serves two non-member municipal utility customers (East Grand Forks and Shakopee) and a part of a cooperative's load (Steele-Waseca Cooperative Electric). The proposed project is intended to address a growing demand for electricity in the MMPA service area.[1]

The Project will be located north of downtown Faribault, approximately 2.5 miles, on the west side of Highway 76 and south of 170th Street West, in central Rice County, Minnesota (**Figures 1 and 2**). The parcel has recently been annexed by the City of Faribault and is zoned commercial/industrial.

A combined-cycle facility generates electricity from both combustion turbine generators and steam turbine generators. This process is described further in Section 4.0, Project Description.

Minnesota Rules part 4400.1700 states that the Environmental Quality Board (EQB) shall prepare an environmental impact statement on each proposed large electric power generating plant (LEPGP) being reviewed under the full permitting process in Minnesota Rules parts 4400.1025 to 4400.1900.

Much of the information contained within this document was provided by the applicant or the applicant's representatives in the form of: (1) the Application for Certificate of Need for Faribault Energy Park, (2) the Site Permit Application, Faribault Energy Park, (3) PSD Air Quality Permit Application, and (4) personal communications. The applicant's representatives providing information that was utilized in the development of this document include: Stanley Consultants, Incorporated; IMA Consulting, Incorporated; and Dahlen, Berg and Company.

Additional sources of information are listed below:

- Minnesota Pollution Control Agency (http://www.pca.state.mn.us/)
- Minnesota Department of Natural Resources (http://www.dnr.state.mn.us/index.html)
- Minnesota Department of Health (http://www.health.state.mn.us/)
- U. S. Environmental Protection Agency (http://www.epa.gov/)
- Electric Power Research Institute (http://www.epri.com/default.asp)

[1] Application for Certificate of Need for Faribault Energy Park. pp 1-3. PUC docket IP-6202/CN-02-2006

- City of Faribault (http://www.faribault.org/)
- U. S. Department of Agriculture Natural Resources Conservation (http://soils.usda.gov/about/)
- Minnesota Geological Survey (http://www.geo.umn.edu/mgs/)
- Minnesota Planning Agency, State Demographic Center (http://www.demography.state.mn.us/)
- Federal Emergency Management Agency (http://www.fema.gov/)
- U. S. Department of Energy, Energy Information Administration (http://eia.doe.gov/)

2.0 Purpose and Need for Faribault Energy Park

The stated need and purpose for the project is based on forecasted load growth for the next four years and the expiration of existing short-term capacity purchases. Dahlen, Berg & Company (Dahlen) has performed resource planning for Minnesota Municipal Power Agency (MMPA) since 1992. Based on load forecast data, Dahlen has projected a deficit of 113 MW in the MMPA service area beginning in the year 2006.[2]

MMPA has stated a need for an intermediate resource. An intermediate resource is one that generates energy during medium to high load periods.

The Department of Commerce (DOC) found that the MMPA has a capacity and energy need of approximately 113 MW commencing in 2006. Additionally, the 138 remaining MW are needed to address MMPA's future growth needs and Mid-Continent Area Pool's (MAPP) summer season reserve deficits.[3]

The need for the Project was established by the Certificate of Need (CON) process provided for in Minnesota Rules Chapter 7849. That process culminated in the Public Utilities Commission's (PUC) August 8, 2003 order granting Faribault Energy Park, LLC a CON for the Project.

2.1 Regulatory Process and Requirements

A proposer must go through three major regulatory steps to build an electric power generating plant of this type and size in Minnesota:

- Certificate of Need: Minnesota Statutes Section 216B.243 requires a CON from the PUC to construct a power plant designed for or capable of operation at a capacity of 50,000 kilowatts or more.
- Site Permit: No person may construct a LEPGP without a site permit subject to environmental review. Minnesota Statutes 116C.51 - 69.
- Permitting: various regulatory agencies must issue permits for regulated activities such as water appropriations, air emissions, waste water discharges, etc.

When the PUC has issued a CON for a large energy facility project, the EQB is precluded by statute, (Minn. Stat. §116C.53, subd. 2), from considering issues related to the size or type of the facility. Consequently, the EQB will not, as part of the environmental review process, consider whether a different size or different type plant should be built instead. Nor will the EQB consider the no-build option.

Individual agencies cannot issue permits until the site permit has been issued.

[2] Application for Certificate of Need for Faribault Energy Park, PUC docket IP-6202/CN-02-2006
[3] Stipulation and Agreement jointly submitted by FEP and the DOC, April 2, 2003. pp 9-10.

On September 9, 2003, FEP submitted to the EQB a site permit application regarding a proposal to construct and operate a dual-fuel, combined-cycle electric generating facility capable of producing 250 megawatts (MW). The EQB is required to prepare an Environmental Impact Statement (EIS) as part of its consideration of the request for a site permit. The public must be provided an opportunity to comment on the scope of the EIS. The chair of the EQB shall determine the scope of the EIS.

On October 15, 2003, a public meeting was held by the EQB staff at the Faribault city hall to discuss the project with interested persons and to solicit input into the scope of the EIS. Eight people, in addition to representatives of FEP attended the public meeting. The public also had an opportunity to ask questions during informal discussions with project personnel. The comment period was held open until 5:00 pm October 24, 2003.

No alternative sites were proposed during the public meeting, nor did EQB staff identify any alternative sites during the scoping process.

The scoping decision was signed by the chair on October 31, 2003 (**Appendix A**).

3.0 Alternative Sites Considered

No person may construct a large electric power generating plant (LEPGP) in Minnesota without a site permit (granted by the EQB or appropriate local unit of government {LUG}) subject to environmental review. Minnesota Rules Chapter 4400 establishes the requirements for the processing of site permit applications.

Minnesota Rules part 4400.1150, Subpart 1, Item C states that an application for an LEPGP must contain at least two proposed sites for the proposed LEPGP and identification of the applicant's preferred site and the reasons for preferring the selected site.

In the initial planning stages for the project, the MMPA performed a screening evaluation of potential sites in Minnesota for construction of a new power generating facility. Initial screening criteria for evaluation of these sites included the following:

- Proximity to suitable transmission infrastructure and potential interconnection costs.
- Location of suitable natural gas pipelines in relation to the potential site.
- Magnitude of environmental impacts.
- Community acceptance.
- Availability of land.

Following this evaluation, the MMPA determined that the most appropriate location was in the area north of the City of Faribault. MMPA then established the limited liability corporation, Faribault Energy Park, LLC (FEP), to design, construct and operate a nominal 250 MW combined cycle power plant. At the time of this evaluation, the area selected was proposed for future annexation by the City of Faribault for industrial development.

A preferred site was selected on a parcel of land located in this area in the southwest quarter of the northeast quarter of Section 13, Township 110 north, Range 21 west (**Figures 2 and 3**).

The alternative site selected is on an adjacent parcel of land located in the southeast quarter of the northeast quarter of Section 13, Township 110 north, Range 21 west (**Figure 2 and 3**).

3.1 Comparison of Differences

Due to the close proximity of the preferred site to the alternative site, much of the "affected environment" and "anticipated environmental impacts" are identical. However, aspects of certain potential impacts do have slight differences. Presented below is a discussion, by category, of the differences between the preferred and alternative sites.

Air - The preferred site is located marginally farther from the nearest receptor, but due to engineering controls and the configuration of the emission points in the proposed facility, there should be no significant difference in exposure to receptor populations between the preferred site and the alternative site.

Land - Both of the sites are located on land historically used for agricultural purposes. There is no significant difference in potential to negatively affect agricultural land between the two sites. The highest elevation occurs on the alternative site (1023' swl) and the land form slopes to the northwest (1001' msl), where a drainage way truncates the preferred site. Wetlands on the two sites are concentrated in the northwest portions of the preferred site, however, enough flexibility exist within the site plans to avoid destroying any regulated wetlands. The footprint required for each site is similar, so there is no significant difference in the effect on total land use.

Water Supply - Both sites would withdraw groundwater from the underlying Jordan aquifer from relatively the same point, and as such, there is no difference in potential to significantly affect other users of the Jordan aquifer.

Vegetation - Both proposed sites would be located on land predominantly used for corn/soybean crop rotation, so native vegetative impacts appear to be similar. Very little native vegetation would be removed in either construction scenario.

Land Use - Both sites would remove land from agricultural use. This area has recently been annexed by the City of Faribault. The preferred site is zoned I-2, which is heavy industrial. The alternative site is zoned TUD, Transitional Urban Development, which is a holding zoning designation for annexed property that does not yet have a formalized development plan with the City. If the alternative site were to be selected, FEP would seek to obtain a zoning variance from the City.[4] Consequently, there is no significant difference in planned land use between the sites.

Municipal Services - Both sites would use limited City of Faribault services, primarily fire and police services. At this time, the engineering design for either site would use a septic system for sanitary waste management, an onsite wastewater treatment plant, and groundwater for process and potable water. The preferred site will incorporate created wetlands, as an additional process step to the wastewater treatment plant. The alternative site will not incorporate the created wetland due to the site's topography, lack of natural wetlands, and the distance to the outflow tributary. Planning for the project regardless of selected site does not include use of City water or sewer service.

Roads – Access to the both sites is currently via an unimproved farm field road off of County Road 76. There is no direct access to either site from a public right-of-way (ROW), both sites would require construction of city streets in accordance with the City of Faribault zoning requirements. FEP and the City of Faribault are currently negotiating

[4] Correspondence from Faribault Energy Park, dated October 30, 2003

the various options. Selection of the preferred site would most likely require extending Park Street to the north. Selection of the alternative site would require the development of an improved road, with railroad crossing, from County Road 76. Impact to traffic would be similar with either proposed site.

Fogging and Icing Potential - The preferred site would be located approximately 400 yards farther West of State Highway 76, so the potential for fogging and icing on the downwind highway would be less at this location than at the alternate site. The preferred site would be closer to Interstate 35, but since the prevailing wind pattern for the area is dominantly from the West, the potential for icing and fogging on Interstate 35 is lessened.

Noise Potential - The preferred site would be located farther away from the nearest receptor, resulting in less noise impact than the alternate site. In addition, selection of the alternate site would likely result in the necessity to purchase the property of the nearest receptor to mitigate noise impact, resulting in one net displacement plus an unknown additional cost in procuring this property.

Visual Impacts - The Faribault Energy Park will be a relatively large industrial facility. Visibility from a distance would be similar regardless of whether the facility was located on the preferred site or the alternate site. However, the preferred site allows for the construction of a created wetlands and interpretive educational park with public access.

Historic Sites - According to the historical, cultural and archaeological resources reviewed, neither site would pose a threat to these resources.

Economic Effects - Both proposed sites would have similar economic impacts on the community. The land area requirements of each facility are similar, so the current property owner might be compensated in roughly the same amount. Employment projections are identical, so both construction payrolls and operating personnel salaries would be identical. The proposed sites are in near proximity, so they would draw from the same labor pool. There appear to be no significant differences in economic impact between the proposed sites.

Natural Gas Availability - The preferred site would be in closer proximity to the natural gas pipeline, so the construction costs (i.e., additional length, easement cost) to establish service would be lower. Both proposed sites would draw from the same natural gas pipeline.

Electric Transmission - The preferred site is located about 400 yards closer to the proposed transmission interconnect point. Costs of establishing service to the preferred site would be less expensive than the alternate site. The alternate site would require easements for electrical transmission, resulting in a higher cost. In addition, this easement may reduce the desirability of the preferred site for potential development.

Wastewater Management - Currently, it is anticipated that sanitary wastes would be managed by disposal in a permitted on-site septic system at either site. Process wastewater at the preferred site would be treated in an on-site wastewater treatment plant, discharged into created wetlands for additional treatment, then discharged to an unnamed tributary of the Cannon River. Because of site considerations (topography, lack of natural wetlands and distance to the outflow tributary), wastewater management at the alternate site would consist of treatment in an onsite wastewater treatment plant with discharge to the unknown tributary.

Community Acceptance - Based on comments made during the public informational meetings with various individuals and community groups in the area, it appears that construction of the facility in this area has wide community support. Initial contacts between FEP representatives and the resident property owner, whose property adjoins the alternate site were not favorable. Because of the likely objection of this resident property owner, the preferred site enjoys more community acceptance than the alternate site.

Impact on Future Development - The preferred site is located on land directly adjacent to Interstate 35, and leaves the potential industrial development of the entire alternate site open. If the alternate site were selected, it is probable that certain easements (transmission line and pipeline) would impact the preferred site. In addition, the procurement these easements on the alternate site would entail added costs.

Aesthetics: - The preferred site would allow for the creation of wetlands for final treatment of process wastewater. This additional treatment would further decrease the impact of the facility's effluent on the water quality in the unnamed tributary. In addition, the Faribault Energy Park plans on developing an interpretive park for public use surrounding these wetlands, which would greatly enhance the aesthetics of the facility.

4.0 Project Description

4.1 General

The Faribault Energy Park facility will be capable of generating 250 megawatts (MW) of electricity. **Figure 4** illustrates a conceptual plan of the facility situated on the preferred site. **Figure 5** illustrates a conceptual plan of the facility situated on the alternative site.

The actual usage (availability) of the plant, measured as its annual capacity factor, is expected to be 40 to 80 percent, based on MMPA predicted intermediate resource needs.

4.2 Description of Power Generation Equipment and Process

The power generation system will consist of a combined-cycle power block. Within the power block will be one advanced technology combustion turbine capable of being fueled with either natural gas or fuel oil. The combustion turbine (CT) will be connected to a generator to produce electricity. The exhaust from the combustion turbine will be directed through a structure of densely packed tubes through which water is pumped. The water is converted into steam by the heat of the CT exhaust. These structures are called heat recovery steam generators (HRSG). The steam produced in the HRSG will be combined and routed under pressure to drive a single steam turbine/generator to produce electricity.

Spent steam from the steam turbine/generators is cooled and condensed in a surface condenser, using water cooled in a cooling tower. Condensed water from the surface condenser is then sent back to the HRSG for reuse in making steam.

Since electricity is created from both the combustion turbine and the steam turbine, facilities like the FEP proposal are known as “combined-cycle” facilities. By contrast, “simple-cycle” facilities having just a CT, allow the heat of combustion to be released (i.e., wasted) through the exhaust stack. Combined-cycle facilities are thus more efficient as they are able to generate more electricity from every unit of fuel utilized.

4.3 Project Structural Features

The plant footprint will require approximately 12 acres. The base plant design consists of the following major equipment:

- Gas Turbine/Generator
- Steam Turbine/Generator
- Transformers
- Heat Recovery Steam/Generator
- Exhaust Stack (height of 170’)
- Emergency Diesel/Generator
- Fuel Oil Storage Tanks
- Cooling Towers

- Water Storage Tanks

The following air emission units are anticipated for construction:

- One (1) combustion turbine (Mitsubishi M501F or equivalent) operating in combined cycle with a heat recovery steam generator.
- One (1) auxiliary boiler with a burner capacity of 40 million BTU's per hour (MMBtu/hr).
- One (1) 500 kilowatt (kW) emergency generator.
- One (1) 250 horsepower (hp) fire pump engine.
- One (1) 3.41 million gallon per hour (MMGal/hour) cooling tower.

Figure 6 illustrates how the facility and associated structures might appear on the landscape.

4.4 Water Use

The major water demands in the power plant are water for injection into the gas turbine chambers for NO_X control when firing fuel oil and power augmentation when firing natural gas, water for the gas turbine inlet air evaporative coolers, water utilized in the HRSG, and non-contact cooling water. A water balance is presented in **Table 1**.

Water is anticipated to be obtained from two production wells located at the northeastern and southwestern portion of the property – each capable of pumping sufficient water for plant cooling requirements for redundancy. Water supply is anticipated to be developed from the underlying Jordan aquifer, a regional bedrock aquifer located at a depth of approximately 700 to 800 feet below grade. The wells will extract approximately 1.9 million gallons per day from the underlying Jordan Formation. A groundwater appropriation permit will be required from the Minnesota Department of Natural Resources (MDNR).

A water storage tank will be provided for storage of approximately 300,000 gallons of de-mineralized water to be used for control of NO_X when firing on fuel oil. Another 2,500,000 gallons of water will be available for chilled water storage and 1,500,000 gallons of untreated water will be stored for plant use, process requirements and fire protection.

Preliminary calculations indicate the primary water use at the Project will be an instantaneous maximum of 1,350 gpm.

4.5 Wastewater

The wastewater (non-contact cooling water) created by the Project through the electric generation processes is estimated to be 0.5 mgd. The wastewater will be discharged to a created wetland. The wetland will be designed and constructed so as to have zero discharge under normal conditions, although there may be limited discharge during storm

events. Over-flow, during significant storm events, from the created wetland will spill into an existing drainage-way which transects the Project site. This drainage-way flows to the Cannon River approximately 2.5 miles to the east. The cooling water discharge points, both at the inlet to the created wetland and the outlet to the drainage-way, will be designed and constructed with the appropriate materials, including geo-textile fabric and rip-rap, to dissipate energy and control erosion.

The temperature of the discharge water will be no more than five degrees Fahrenheit above the natural temperature of the drainage ditch based on a monthly average of the maximum daily temperature. Under no circumstances shall the water temperature exceed the daily average temperature of 86 degrees Fahrenheit.

Discharge of this wastewater stream will be under and in accordance with a National Pollution Discharge Elimination System (NPDES)/State Disposal System (SDS) permit administered through the Minnesota Pollution Control Agency (MPCA) and a Public Waters Permit (if applicable) administered through the Minnesota Department of Natural Resources (MNDNR).

The wastewater from sanitary facilities, estimated to be approximately 3,000 gpd, will discharge to an on-site septic system (ISTS). The ISTS will be designed, constructed and permitted through the Rice County Department of Planning and Zoning's Environmental Health Division.

4.6 Electric Transmission Interconnection

Options for the Project's interconnection to the electrical transmission grid include a rebuild of the existing Lake Marion-NE Faribault 115kV line to a higher capacity or the addition of a new 161 kV circuit from the facility to either the South Faribault substation or a new site further south along the South Faribault-West Owatonna 161 kV line.

The 115 kV rebuild of the Lake Marion-NE Faribault line would entail the reconstruction of approximately 20 miles of line on the existing right-of-way.

The addition of a new 161kV circuit from the Project site to the existing SMMPA system would provide a new transmission source to the Owatonna and surrounding area.

Preliminary discussions identified three possible routing options associated with a new 161 kV line, the longest requiring approximately 5 miles of new right-of-way.

A certificate of need (CON) from the Public Utilities Commission (PUC) is required for the construction of any high-voltage transmission line (HVTL) with a capacity of 100 kilovolts (kV) or more that is ten miles or more in length (Minn. Stat. § 216B.2421, Subd. 2, Item 3). No person may construct a HVTL without a route permit (granted by the EQB or LUG) subject to environmental review. For HVTLs between 100 and 200 kilovolts, the applicant seeking the route permit has the option of applying to the relevant local unit of government (LUG), provided the LUG has the appropriate rules/ordinances

or the Environmental Quality Board (Minn. Stat. §116C.57, Subd. 2 and §116C.576, Subd. 1, Items a and b).

4.7 Air Emission Control Equipment

Air emission control equipment at the Project will include dry low-NO_X (DLN) combustors when firing on natural gas and steam/water injection when firing on fuel oil.

DLN combustor technology premixes air and a lean fuel mixture that significantly reduces peak flame temperature and thermal nitrogen oxides (NO_X) formation. Conventional combustors are diffusion controlled where fuel and air are injected separately, resulting in hot spots that produce high levels of NO_X. In contrast, DLN combustors operate in a "premixed mode" where air and fuel are mixed before entering the combustor, thus reducing the production of NO_X. Additionally, in DLN combustors the amount of NO_X formed does not increase with residence time, allowing the DLN system to achieve low carbon monoxide (CO) and unburned hydrocarbons (UHC) emissions while maintaining low NO_X levels. Long residence times are required to minimize CO and UHC emissions. The Mitsubishi M501F or equivalent combustion turbine (CT) proposed for this project will operate with DLN combustion when firing natural gas and can achieve a 25 parts per million (ppm) NO_X emission rate utilizing its dry low NO_X technology.

Steam/water injection when firing on fuel oil reduces the flame temperature, and thereby reducing NO_X formation, by introducing a heat sink into the flame zone. Both water and steam have been effective at achieving this goal. There are practical limits with injecting water or steam; the greatest being that increased water/steam injection will eventually lead to a blow out of the flame. Steam injection is applied with the Mitsubishi M501F CT when firing fuel oil with a manufacturer reported 42 ppm NO_X concentration in the exhaust.

In addition, selective catalytic reduction (SCR) will also be used for mitigating NO_X emissions from the turbine exhaust. The SCR will be installed within the heat recovery system on the combined cycle unit. In SCR systems, ammonia or urea is injected into the flue gas and reacts with NO_X in the presence of a catalyst to produce N_2 and H_2O. The SCR will remove approximately 90% of the NOx in the combustion turbine exhaust stream. In ideal conditions, the reaction requires one part ammonia to one part nitrogen. However, there still remains some un-reacted nitrogen oxide and un-reacted ammonia (i.e., ammonia slip) that is exhausted from the stack after the application of SCR.[5]

Emissions of carbon monoxide (CO), volatile organic compounds (VOC), sulfur oxides (SO_X) and particulate matter (PM_{10}) will be controlled through fuel selection and operational controls (combustion control, operating load, and firing temperature). Once the Minnesota Pollution Control Agency (MPCA) reviews the Prevention of Significant Deterioration (PSD) Air Quality Permit application, the MPCA may require that the facility utilize an oxidation catalyst as an addition to the proposed air emission control equipment to further reduce emissions of CO and VOCs.

[5] Gas Turbine Environmental Siting Considerations. May 2001. EPRI, Palo Alto, CA

4.8 Fuel Supply

Natural gas will be supplied to the Project via a new 16-inch underground pipeline connected to the Northern Natural Gas (NNG) mainline. The new 16-inch line to the plant will be rated at 400 psi, approximately ¼ mile in length and will be routed to the plant completely within the plant property.

A major consideration for electrical power generation through 2025 will be the availability of adequate natural gas supplies at competitive prices to meet growth in demand. Domestic natural gas consumption is met by domestic production and imports.

The Department of Commerce and the applicant have stipulated that natural gas is expected to be available over the 30 year life of the plant. They also stipulated that NNG will transport the gas from the market locations (i.e., Ventura, Iowa) to the Project site in accordance with Gas Industry Standards Board guidelines.[6]

Depending on the design (i.e., pressure rating) and ownership of the pipeline a routing permit may be required from the EQB (Minn. Stat. §116I.015). The EQB has jurisdiction over pipelines with a diameter of six inches or more that are designed to carry natural gas and be operated at a pressure of more than 275 pounds per square inch. The EQB's authority does not apply to interstate natural gas pipelines regulated under the federal Natural Gas Act and to pipeline owners or operators who are defined as a natural gas public utility under Minn. Stat. § 216B.02.

Fuel oil will be used as an alternative fuel. Fuel oil supply will be installed on-site to provide approximately 48 hours of operation. The fuel oil will be stored in aboveground storage tanks (AST) equipped with monitoring and secondary containment. Total fuel oil storage capacity on-site will be approximately 700,000 gallons. A Spill Prevention Control and Countermeasure (SPCC) plan, administrated through the MPCA, will be developed to address the management of petroleum stored on-site.

When firing at full load, the combustion turbine will consume approximately 2 million standard cubic feet (scf) of natural gas per hour. When using fuel oil, 14,000 gallons of number 2 fuel oil per hour (gph) will be consumed in the combustion turbine.

4.9 Anticipated Land Disturbance Activity

The Project site consists of a 37-acre parcel which is relatively flat with no steep slopes or highly erodible soils. The proposed developed portion of the site will include approximately 15 acres.

Significant construction activity including earthwork (i.e., grubbing, cutting/excavation, filling and grading) will occur on the proposed developed portion of the site. Vegetation and topsoil will be removed and stockpiled on-site for use in landscaping later in the development process.

[6] Stipulation and Agreement jointly submitted by FEP and the DOC, April 2, 2003. p 7.

To avoid impacting the wetlands or surface waters during construction, Best Management Practices (BMP) will be employed during the site development. BMPs are a combination of management and structural practices (e.g., silt fences, bailing, wet ponds, grass swales, storm water wetlands, sand filters, dry detention, etc) taken during construction activities to reduce pollutant concentrations and loadings associated with storm water runoff[7].

4.10 Chemical Use

Table 2 lists the chemicals and estimated amounts that can be expected to be used in the operation of a natural gas-fired generating facility of this size. Demineralizer chemicals will be stored in the water treatment building or in nearby tanks. HRSG feedwater treatment chemicals and laboratory chemicals will be stored in the generation building.

Aqueous ammonia for the SCR system will be stored in a double-walled tank outside the generation building.

All areas housing chemicals will have appropriate containment (i.e., concrete floors, concrete curbing, etc.). All areas of potential oil or lubrication spills will also be protected by containment structures (i.e., concrete floors, concrete curbing, etc.). Lockable drain valves will be used where appropriate. Where present, floor drains will be directed to an oil/water separator, holding tanks or chemical collection/treatment facilities.

Certain chemicals, if stored above threshold quantities, may trigger the reporting requirements of Title III of the Superfund Amendments and Reauthorization Act (SARA). Enacted in 1986, Title III establishes several different reporting and planning requirements for businesses that handle, store or manufacture certain hazardous materials. These reports and plans provide federal, state, and local emergency planning and response agencies with information about the amounts of chemicals businesses use, routinely release, or have potential to spill.

4.10.1 Demineralization Systems Treatment Chemicals

Groundwater will be treated by ion exchange to produce demineralized water for process use. The demineralization systems will require the use of sodium hydroxide and sulfuric acid for regeneration of the exchange resins.

4.10.2 HRSGs Feedwater Treatment Chemicals

Demineralized water that is to be used in the HRSG will require the addition of an oxygen scavenger, neutralizing amine solution to control pH and phosphate for pH adjustment and scale control. Periodic cleaning of the HRSGs will require the use of citric acid, sodium carbonate, sodium nitrite, sodium hydroxide and various inhibitors.

[7] http://www.pca.state.mn.us/water/stormwater/stormwater-c.html

4.10.3 SCR Chemicals

The SCR system will use a 19 percent aqueous ammonia solution (as delivered) as a reagent for control of NO_x emissions.

4.10.4 Solid, Liquid, Gaseous, and Hazardous Wastes

Oily water periodically pumped from the secondary containment areas or from floor drain traps will be removed from the plant by a licensed hauler for disposal at a licensed facility.

4.10.5 Other Materials

A number of miscellaneous chemicals, laboratory reagents and equipment lubricants will be stored in small quantities within the facilities' buildings. Diesel fuel will be required for a diesel engine driven fire pump. Sulfuric acid will be required for the Project's batteries. Compressed gases used at the Project, such as carbon dioxide and nitrogen, will be stored outdoors in returnable cylinders. Hydrogen will be stored outdoors in high-pressure storage cylinders mounted aboveground or in trailers. Insulating mineral oil will be included with the transformer system. Sulfur hexafluoride will be used as an electrical insulating gas for the substation. Fire protection chemicals will include a number of Type BC (10 BC), 20 pound CO_2 hand-held extinguishers and Type ABC (20A120BC), 20 pound dry chemical extinguishers.

5.0 Affected Environment

This section describes the affected environment and conditions near the proposed site for the plant and the alternative site next to the preferred site. This section identifies the water resources that may be affected, including surface waters, groundwater, floodplains, and onsite wetlands. In addition, existing air quality and noise impacts are identified. Also, vegetation, wildlife, cultural resources, traffic, socioeconomic factors, and aesthetics in the area are addressed.

5.1 Land Use

The proposed Project site has recently been annexed by the City of Faribault and is zoned as a heavy industrial district (I-2).

The City of Faribault's Land Use Plan had previously identified this area for annexation and industrial development (**Figure 7**). The City of Faribault reviews its Land Use Plan on an as needed basis to ensure both its timeliness and accuracy in reflecting city land use policy.

The purpose of the Land Use Plan is to ensure the orderly growth and development of the City of Faribault while maintaining a sound infrastructure and economy. Since its adoption in 1989, the Land Use Plan has served as a guide to direct development toward established community goals. It is not intended to be an exact blueprint of the city's future, but rather a tool to direct, coordinate, and evaluate the city's growth and to ensure continued orderly development patterns. The Land Use Plan identifies general areas in the community where commercial, residential, industrial, and open space land uses will be allowed and provides plans, objectives, and policies to encourage a compatible pattern of land uses throughout the city.[8]

The Project will remove approximately 37 acres of prime farmland from agricultural production. The Minnesota power plant siting rules (Minnesota Rules part 4400.3450, Subpart 4) allow use of not more than 0.5 acres of prime farmland per megawatt (MW) of installed power, excluding water storage reservoirs and cooling ponds. Given the nominal 250 MW generating capacity of the proposed Project, this rule would allow up to 140 acres of prime farmland for the generation plant site.

The proposed project is compatible with the City of Faribault's Land Use Plan.

5.2 Water Resources

5.2.1 Surface Waters

[8] http://www.ci.faribault.mn.us/plan_zoning/welcome.htm

The Project site is truncated by a surface water drainage-way that appears to be semi-permanent as evidenced by the presence of minnows and frogs noted during the wetland delineation work. This drainage-way is a tributary to the Cannon River. The drainage-way enters the Project site from the west through a 84" by 60" crop management plan culvert which passes underneath Interstate 35. The drainage-way ravine crosses the Project site southwest to northeast and has a uniform shape, measuring approximately 25 feet in width across the top and approximately 9 feet in width across the bottom. The ravine is approximately five feet deep near the west property line and four feet deep near the north property line. There is a 20 foot long by 5 foot diameter steel culvert at the Project site's northern boundary to allow farm vehicles to cross the drainage-way.

5.2.2 Ground Water

A groundwater appropriation permit will be required from the Minnesota Department of Natural Resources (MDNR)[9] and a well installation permit will be required from the Minnesota Department of Health (MDH).[10] Water will be extracted from the Jordan Formation.

The Jordan Sandstone is open and porous throughout Rice County. The formation is approximately 90 feet thick. It is saturated with water under sufficient pressure to enter wells freely and to flow to the surface under considerable head in the valleys of the Cannon and Straight Rivers. The Jordan is the most dependable water-producing formation in Rice County and is commonly used where large quantities of water are required.[11]

The water quality of the Jordan Bedrock aquifer is heavily mineralized; therefore pre-treatment (i.e., pH adjustment, demineralization, and filtration) of the water will be required. The estimated groundwater quality is presented in **Table 3**.

The near-surface or water table aquifer is approximately six feet below grade. This groundwater level is possibly influenced by the presence of drainage titles installed for agricultural purposes. It is likely that on-site temporary dewatering may be required during some of the construction activities (excavation for building foundations and underground utilities).

A search to identify wells on or in the vicinity of the proposed Project site using the County Well Index (CWI) data base was conducted. There are no recorded wells on the preferred Project site. Several wells, ranging in depth from 100 feet below grade to 440 feet below grade exist within one mile of the proposed Project site.[12]

[9] http://www.dnr.state.mn.us/permits/water/index.html
[10] Minnesota Department of Health Well Management Section. http://www.health.state.mn.us/divs/eh/wells/contactus.html
[11] Soil Survey of Rice County, Minnesota, March 1975. United States Department of Agriculture Soil Conservation Service
[12] Minnesota County Well Index. Minnesota Department of Health/Minnesota Geological Survey. 1998. version 4.00

5.2.3 Wetlands

The wetlands on the site were delineated by Stanley Consultants, Incorporated (Stanley Consultants) based on the guidelines contained in the 1987 Corps of Engineers Wetlands Delineation Manual. The wetland delineation was conducted to identify potential wetlands on the Project site. Federal regulations provide a definition for wetlands. A permit from the US Army Corps of Engineers must be obtained for any dredging or filling activities in regulated wetlands. **Appendix B** contains a series of photographs of the site taken during the Wetland Delineation work.

The wetland survey was conducted at the site on July 23 and 26, 2002, and on September 13 and 26, 2002.[13] Sampling points were established in areas that potentially met the definition of wetlands. At these points, the required criteria (vegetation, hydrology, and soil conditions), were recorded on Routine Wetland Determination Data Forms.

Six wetland areas (5 Type I and 1 Type III - U. S. Fish and Wildlife Service Circular 39 classification system) were identified and delineated on the Project site (**Figure 8**). Three of the wetlands are associated with depressions and three are associated with drainage-ways. The area for the depression and drainage-way wetlands is approximately 0.25 acres and 1.34 acres, respectively.

A Type I wetland is defined as "Seasonally Flooded Basin or Flat" with the following characteristics:

- **Soil:** Usually well-drained during much of the growing season
- **Hydrology:** Covered with water or waterlogged during variable seasonal periods
- **Vegetation:** Varies greatly according to season and duration of flooding from bottomland hardwoods to herbaceous plants
- **Common sites:** Upland depressions, bottomland hardwoods (floodplain forests)
- **National Wetland Inventory Symbols:** PEMA, PFOA, PUS

A Type III wetland is defined as a "Shallow Marsh" with the following characteristics:

- **Soil:** Usually waterlogged early during growing season
- **Hydrology:** Often covered with 6 inches or more of water
- **Vegetation:** Grasses; bulrush; spikerush; and various other marsh plants, such as cattail, arrowhead, pickerelweed, and smartweed
- **Common sites:** May nearly fill shallow lake basins or sloughs; may border deep marshes on landward side, commonly as seep areas near irrigated lands
- **National Wetland Inventory Symbols:** PEMC and F, PSSH, PUBA and C

The owner of a parcel of land located to the northeast (Township 110, Range 20, Section 7) of the Project site is planning a forty acre wetland restoration project on his property.[14]

[13] Wetland Delineation MMPA Power Generation Facility, October 2002. Stanley Consultants, Inc.
[14] Personal communication with Mr. Anthony Jandro

His property is also truncated by the surface drainage-way and lies down stream of the Project site.

5.2.4 Flood Plains

Floodplain data was obtained from the Federal Emergency Management Agency (FEMA) and Flood Insurance Rate Maps (FIRM).[15] The site is not within a recognized floodplain. The Project site is situated at an elevation of approximately 1,010 feet above sea level.

5.3 Noise

Noise is comprised of a variety of sounds, of different intensities, across the entire frequency spectrum. Humans perceive sound when sound pressure waves encounter the auditory components in the ear. These components convert the pressure waves into perceivable sound. Noise is measured in decibels (dB).

Stanley Consultants conducted an ambient noise survey at the Project site on September 9, 2002, to quantify and characterize the existing ambient sound levels. A Bruel and Kjaer precision sound level meter, Type 2231, was used to determine background noise levels at three locations; the far west property line along the transmission corridor, the center of the preferred property site, and the eastern property adjacent to the nearest receptor.[16]

Current ambient noise detectable on the Project site consists of intermittent traffic along the local roads, traffic from Interstate Highway 35 and State Highway 76, operation of agricultural equipment, small aircraft, and birds and insects. Average background sound levels range from 54 to 59 dBA.[17]

Ambient sound levels were measured in decibels using both octave band values and overall A-weighted sound levels (dBA). The A-weighted scale is preferred for applications such as this because it simulates the frequency response of the human ear.[18]

The statistical sound levels are useful in describing the time-varying nature of the sound. L90 is the sound level exceeded 90 percent of the measurement period or the quietest 10 percent sound level. L90 is commonly considered to represent the residual background sound level, because it effectively removes transient loud noise events, such as traffic passes, from the statistical measurement results.

The range of measured residual (L90) background sound levels and the audible noise sources are summarized **Table 4**. Sound levels ranged from 54 to 62 dBA at the various

[15] http://www.msc.fema.gov/
[16] Noise Evaluation Faribault Energy Park, LLC. Stanley Consultants, February 2003.
[17] Ibid
[18] A Guide to Noise Control in Minnesota. pp 9-13. Minnesota Pollution Control Agency, March 1999.

locations. The highest levels were recorded on the western boundary, adjacent to Interstate 35.

5.4 Air Quality

5.4.1 Criteria Pollutants

The U.S. Environmental Protection Agency and the Minnesota Pollution Control Agency have established air quality standards for a number of common pollutants, called criteria pollutants.[19] The criteria pollutants are called that because they are the pollutants that are emitted in large quantities and for which health criteria existed in 1972 when Congress passed the Clean Air Act. [20] The criteria pollutants are sulfur dioxide (SO_2), nitrogen oxides of different chemical composition (represented by the term NO_X,), particulate matter PM 10 and PM 2.5, where the number specifies the size of the particulates), carbon monoxide (CO), ozone (O_3), and lead (Pb).

The National Ambient Air Quality Standards (NAAQS) for these pollutants are shown in **Table 5**.[21] The state standards are nearly identical, although Minnesota has a one-hour sulfur dioxide standard.[22] There are two types of air quality standards – primary standards and secondary standards. Primary standards are intended to protect public health, including the health of sensitive populations like asthmatics, children, and the elderly. Secondary standards are intended to protect public welfare, by preventing decreased visibility and damage to crops, animals, vegetation, and buildings.

Areas of the country that do not meet national ambient air quality standards are designated nonattainment areas for the particular pollutant or pollutants for which the standard or standards are not met. The Faribault area presently meets all federal and state ambient air quality standards.

A power plant of the type proposed here, burning natural gas and fuel oil, will emit hundreds of tons of certain criteria pollutants into the atmosphere. These pollutants will be emitted out a stack about 170 feet above grade and will disperse over a large area in prevailing winds. A discussion of Minnesota's air quality will help to put the impact of these additional emissions into perspective.

Sulfur Dioxide.

Sulfur dioxide belongs to the family of sulfur oxide gases (SO_x). These gases are very soluble in water. Sulfur is common in raw materials, including crude oil, coal, and ores that contain common metals like aluminum, copper, zinc, lead, and iron. SO_x gases are formed when fuel containing sulfur, such as coal and oil, is burned, and when gasoline is

[19] http://www.pca.state.mn.us/air/air_rulesregs.html
[20] http://www.epa.gov/air/urbanair/6poll.html
[21] http://www.epa.gov/oar/oaqps/greenbk/index.html
[22] http://www.pca.state.mn.us/air/air_mnrules.html

extracted from oil or metals are extracted from ore. SO_2 dissolves in water vapor to form sulfuric acid, and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment, including the formation of acid rain.

Sulfur dioxide causes a wide variety of health and environmental impacts because of the way it reacts with other substances in the air. Sulfur dioside affects the respiratory system in humans, particularly those of sensitive groups like people with asthma who are active outdoors and children, the elderly, and people with heart or lung disease.[23]

Nationwide, about 20 million tons of sulfur dioxide is emitted by numerous sources each year. Over 65% of this amount, or more than 13 million tons per year, comes from electric utilities, especially those that burn coal. Other sources of SO_2 are industrial facilities that derive their products from raw materials like metallic ore, coal, and crude oil, or that burn coal or oil to produce process heat.

The Minnesota Pollution Control Agency has estimated that Minnesota statewide SO_2 emissions were about 142,000 tons in 1994 (the best data available). The data show that fuel combustion, mainly by electric utilities, was the major contributor to SO_2 emissions in Minnesota. In 1994, point source emissions constituted about 85 percent (130,000 tons) of total SO_2 emissions in Minnesota. About 89,000 tons of this was emitted by Minnesota's power plants.

From 1985 to 1994, total SO_2 emissions in Minnesota decreased by 7.3 percent, or 12,000 tons; 153,000 tons of SO_2 were emitted in 1985, compared to 142,000 tons in 1994. From 1985 to 1994, SO_2 emissions from electric utilities decreased from 99,000 tons to 89,000 tons, a 10-percent decline.[24] Xcel Energy has recently proposed a ten year plan to reduce emissions of sulfur dioxide (and other pollutants) from its three biggest power plants in the Twin Cities by switching to natural gas at one (Riverside plant in Minneapolis), by building a new natural gas plant to replace another (the High Bridge plant in St. Paul), and installing modern control equipment on a third (Allen S. King plant near Stillwater).

The long-term trends in Minnesota's SO_2 emissions and ambient air concentrations indicate steady improvement. Over the past several years, the number of SO_2 non-attainment areas in Minnesota has dropped. In 1990, four areas of the state were designated non-attainment for SO_2 – a portion of the Twin Cities, the Pine Bend area around the Koch Refinery, the St. Paul Park area near the Ashland Refinery, and the City of Rochester. Presently, all Minnesota non-attainment areas have been reclassified tas "maintenance areas." The MPCA continues to work with EPA on re-designating the two remaining non-attainment areas. Continued progress in reducing ambient SO_2 concentrations has been possible because new large utility plants have installed sulfur-

[23] How sulfur dioxides affects the way we live and breathe. 2000. US EPA Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711 EPA-456/F-98-005
[24] http://www.pca.state.mn.us/air/emissions/emissearch.cfm

removal equipment; and utility, commercial, residential and industrial users continue to shift to lower-sulfur fuels. One additional factor contributing to lower SO_2 concentrations is the lower sulfur content in today's diesel motor fuels.[25]

Nitrogen Oxides

Nitrogen oxides**,** or NOx, are the generic terms for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Various compounds and derivatives make up the family of nitrogen oxides, including nitrogen dioxide ((NO_2), nitric acid (HNO3), nitrous oxide (N2O), nitrates (NO3), and nitric oxide (NO).[26]

Many of the nitrogen oxides are colorless and odorless. However, one common pollutant, nitrogen dioxide (NO_2), along with particles in the air, can often be seen as a reddish-brown layer (smog) over many urban areas. Nitrogen oxides also contribute to acid rain and lead to the formation of ozone upon chemical reaction with volatile organic compounds in the atmosphere.

Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion turbine process. The primary sources of NOx are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels.

Nitrogen oxides cause a wide variety of health and environmental impacts and can attack the respiratory system and cause lung damage.

Background concentration of nitrogen oxide (NO) and NO_2 are approximately 0.5 and 1 parts per billion (ppb), respectively. In urban areas, one-hour average concentrations of NO may reach 1-2 parts per million (ppm), with maximum NO_2 levels of about 0.5 ppm. Atmospheric levels of NO and NO_2 show daily variations related to the human transportation/work cycle. Maximum concentrations of NO are observed in early morning hours (6 a.m. to 8 a.m.), followed by a second peak later in the day (4 p.m. to 6 p.m.). High morning concentrations of NO are followed several hours later by peak levels of NO_2 produced by oxidation of NO. Seasonal trends can also be observed. Emissions of NO increase in winter months, when there is higher consumption of heating fuel. The warm and sunny days of summer bring higher NO_2 levels, due to photochemical oxidation of NO.[27]

There are no nonattainment areas for nitrogen oxides in the state.

Carbon Monoxide

Carbon monoxide, or CO, is a colorless, odorless gas that is formed when carbon rich fuel is incompletely combusted. It is a component of motor vehicle exhaust, which

[25] Ibid
[26] How nitrogen oxides affect the way we live and breathe 1998.US EPA Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711 EPA-456/F-98-005
[27] http://www.pca.state.mn.us/air/emissions/emissearch.cfm

contributes about 56 percent of all CO emissions nationwide. Other non-road engines and vehicles (such as construction equipment and boats) contribute about 22 percent of all CO emissions nationwide. Higher levels of CO generally occur in areas with heavy traffic congestion. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural events such as forest fires. Carbon monoxide can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and tissues.[28]

A review of the major sources of CO emissions conducted for 1994 shows that transportation sources, mainly highway vehicles, are the major source of CO emissions in Minnesota. Statewide CO emissions in 1994 are estimated to have been 1.7 million tons. The CO emissions decreased statewide between 1985 and 1994. Long-term trends in ambient air concentrations and emissions of CO reflect steady improvement. These improvements closely correlate with reduction in highway vehicle emissions. However, vehicle miles traveled (VMT) per year in the Twin Cities metropolitan area have almost doubled since 1980. VMT have also increased statewide and show no sign of leveling off. Along with consequent congestion, the Minnesota Pollution Control Agency forecasts that this increase in VMT may overwhelm the air quality improvement made as a result of lower emissions from individual vehicles.[29]

Particulate Matter

Particulate matter, or PM**,** is the term used to describe particles found in the air (dust, soot, smoke, and liquid droplets). Particles can be suspended in the air for long periods of time. Some particles are large or dark enough to be seen as soot or smoke, while others are microscopic. The larger groups of particles are identified as "coarse," and by definition have a size range from 2.5 to 10 microns (PM_{10}). The smaller groups of particles are identified as "fine," and by definition have a size smaller than 2.5 microns ($PM_{2.5}$). For comparison, a human hair is usually greater than 10 microns in thickness, in the range of 10 to 100 microns.

Particulate matter can be directly emitted into the air or be formed in the air from the chemical change of gases such as NO_X, SO_X, VOC and ammonia. The latter are indirectly formed when gases from burning fuels react with sunlight and water vapor. These can result from fuel combustion in motor vehicles, power plants, and in industrial processes.

Particulate matter causes a wide variety of health and environmental impacts. Many scientific studies have linked breathing PM to a series of significant health problems, including cardiovascular problems, throat and nose irritation, lung damage, and bronchitis.[30]

[28] How carbon monoxides affects the way we live and breathe. 2000. US EPA Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711 EPA-456/F-98-005
[29] http://www.pca.state.mn.us/air/emissions/emissearch.cfm
[30] How particulate matter affects the way we live and breathe. 2000. US EPA Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711 EPA-456/F-98-005

In the 1970's the ambient air quality standard for particulate matter applied to the particles larger than 10 microns. In 1997, however, the EPA announced new standards for the smaller (fine) particles, those 2.5 microns or less in diameter ($PM_{2.5}$). The new ambient standards were set at 15 micrograms per cubic meter (ug/m^3) on an annual bisis and 65 ug/m^3, for a 24-hour standard period. Evidence from hundreds of studies has shown that these tiny particles are chiefly responsible for the most serious adverse health impacts associated with air pollution. When inhaled, $PM_{2.5}$ penetrates deep into the human lung, where the particles and the toxic materials attached to them remain lodged.[31]

Monitored annually for the past three years to determine whether Minnesota attains the NAAQS, average concentrations of fine particulates in the Twin Cities typically range from 11 ug/m^3 to 14 ug/m^3. Atmospheric $PM_{2.5}$ reached alert levels twice in 2002 in Minnesota.[32]

Ozone

Ozone (O_3) is a gas composed of three oxygen atoms. Ozone naturally exists high in the atmosphere, where it shields the Earth against harmful ultraviolet rays from the sun. Ground-level (i.e., near the earth's surface) ozone is a product of reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of heat and sunlight. Ozone has the same chemical structure whether it occurs miles above the earth or at ground level and it is its location in the atmosphere that determines whether it represents a problem. In the earth's lower atmosphere, at ground-level, ozone is considered harmful. Sunlight and hot weather cause ground-level ozone to form in harmful concentrations in the air. As a result, it is known as a summertime air pollutant. Many urban areas tend to have high levels of ground-level ozone, but even rural areas are also subject to increased ozone levels because wind carries ozone and pollutants that form it hundreds of miles away from their original sources. Ground-level ozone even at low levels can adversely affect everyone. It can also have detrimental effects on plants and ecosystems.[33]

Ozone can cause breathing problems in sensitive populations. It can also damage plants and trees. Ozone can also reduce visibility.

Lead

Lead levels in the environment have decreased dramatically since lead in gasoline was banned by the Environmental Protection Agency in 1978. The only places where lead is still found in concentrations of concern is in the inner cities, where years of exhaust from motor vehicles burning leaded gasoline have resulted in high levels in the soil in such areas.

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[31] *Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality*. A Special Report of the Institute's Particle Epidemiology Reanalysis Project. July 2000. http://www.healtheffects.org/pubs-special.htm

[32] Minnesota Energy Planning Report 2002. Appendix A

[33] How ground-level ozone affects the way we live and breathe. 2000. US EPA Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711 EPA-456/F-98-005

Another group of air pollutants has risen in importance. Although greenhouse gases (GHG) do not necessarily directly harm human health, their increase in concentration can lead to global climate change. Global climate change poses risks to human health and to ecosystems. Important economic resources such as agriculture, forestry, fisheries, and water resources also may be affected. The principal GHG is carbon dioxide (CO_2).

There are additional chemicals that can be released, albeit in smaller amounts than the criteria pollutants, which may still be harmful. EPA refers to chemicals that cause health and environmental hazards as "hazardous air pollutants" or "air toxics." Air toxics include chemicals such as benzene, formaldehyde, acrolein, mercury and polycyclic aromatic hydrocarbons (PAHs). EPA tracks emissions of these chemicals in the National Toxics Inventory (NTI) database.

The EPA's Acid Rain Program applies to any new fossil fuel fired utility, constructed after November 15, 1990, and has an electrical output of 25 MW or more. The proposed project will be subject to the Acid Rain provisions.

5.4.2 Toxic Air Pollutants

The burning of natural gas and fuel oil can also result in the emission of noncriteria pollutants of concern. EPA refers to certain chemicals that cause health and environmental hazards as "hazardous air pollutants" or "air toxics." Air toxics include chemicals such as benzene, formaldehyde, acrolein, mercury and polycyclic aromatic hydrocarbons (PAHs). EPA tracks emissions of these chemicals in the National Toxics Inventory (NTI) database. There is no monitoring data presently available for any of these chemicals in the Faribault area.

5.5 Ecological Classification

The Ecological Classification and Inventory (EC&I) is part of a nationwide mapping initiative, initially established by the US Forest Service, developed to improve the ability to manage natural resources on a sustainable basis. The central concept of the EC&I is the integration of biotic and abiotic environments. This method of classification not only facilitates understanding of the natural environment and the distribution of complex ecological systems, but also allows aggregation and desegregation of data and information for multi-level analysis and planning purposes. This is done by integrating climatic, geologic, hydrologic and topographic, soil and vegetation data. Three of North

America's ecological regions, or biomes, converge in Minnesota: prairie parkland, deciduous forest and coniferous forest. The occurrence of three biomes in one non mountainous state is rare, and accounts for the diversity of ecological communities in Minnesota.[34]

[34] Albert, Dennis A. 1995. Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working map and classification. Gen. Tech. Rep. NC-178. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station.

The Big Woods regional ecosystem was once a large Maple-Basswood forest that covered 3,400 square miles east of a line from Mankato to St. Cloud. This region separated the pine forests to the north from the prairies lying to the south and west. Although most of this area was cleared for agricultural use, farmers living in eastern Rice County kept small portions of the Big Woods divided into hundreds of small lots from which families harvested wood, honey, maple syrup, and game. The Big Woods ecosystem in Minnesota is nearly gone. Today, Big Woods remnants in Rice County consist of the Cannon River Wilderness Park (1,100 acres), Seven Mile Woods (700 acres), and Nerstrand Big Woods (1,300 acres); and these represent the largest high quality Big Woods sites remaining in Minnesota.[35]

5.5.1 Vegetation

Development of the native vegetation in the area surrounding the Project site was mostly influenced by climate, topography, soils, and fire. Gulf stream air masses bring humid, warm summer temperatures, and plentiful sunshine provided an ample growing season. This rich energy budget allowed deciduous trees to drop their leaves each fall, then grow an entirely new crop each spring, along with productive growth each year.

The landscape of Rice County includes a mosaic of prairie, forest, and wetland communities. Prairie grasslands have historically occupied the flat lands that today are agricultural fields. Today most prairies are found on steep slopes with thin soils or on sandy or wet areas unsuitable for agricultural production. Forests developed around lakes and wetlands along winding rivers, where the effects of fire were limited. Forests also developed on the north sides of hills, ravines, and other areas where temperatures were cooler and moisture more available. Wetlands allowed wet prairie and specialized forest communities to develop.

Greater than 75% of the region is now cropland, with an additional 5-10% pasture. The remaining 10-15% of the region remains as either upland forest or wetland.[36]

The Project site is already disturbed by agricultural activities and the vegetation lost due to the proposed project will include the cultivated field; surrounding vegetation (prairie and wetland grasses, deciduous Maple-Basswood, and shrubs) lining the depressions, drainage-ways and property lines may also be affected.

5.5.2 Wildlife

Much of the land on and surrounding the Project site has already been disturbed by agricultural activities. The agricultural and natural habitats within the Project site are used by a variety of mammals including the eastern cottontail, striped skunk, whitetail deer, raccoon, fox, mice and squirrels.

[35] Minnesota Natural Heritage Program. 1993. Minnesota's Native Vegetation: A Key to Natural Communities. MDNR
[36] Soil Survey of Rice County, Minnesota, March 1975. USDA SCS

Sandhill crane, heron, waterfowl, common grackle, red-winged blackbird, warblers (blue-winged and Cerulean), kestrel, red-tailed hawk, tufted titmice, and blue-gray gnat catchers are a few of the birds that would be expected around the Project site.

Amphibians and reptiles expected to be located within the Project site include the garter snake, gray tree frog, American toad and chorus frog.

5.5.3 Landform

Topography is characteristically gently to moderately rolling across this region. Soils were formed in thick deposits of gray limy glacial till left by the retreat of the Des Moines lobe of the Wisconsin Galciation.

5.5.4 Geology

Depth to bedrock varies from 100 to 400 feet. Underlying bedrock includes Ordovician and Cambrian sandstone, shale, and dolomite to the south and Cretaceous shale, sandstone, and clay to the north.[37]

5.5.5 Soils

The soils on the Project site are dominantly loamy, with textures ranging from loam to clay loam. Parent material is calcareous glacial till of Des Moines Lobe (Late Wisconsin glaciation) origin. They are classified primarily as Alfisols (soils developed under forests). There are some Mollisols (soils developed under grassland) found on the west side of the region.

Three different soil classifications (Cordova clay loam, Hayden loam and Glencoe clay loam) are found within the Project site. These soils are generally fined-grained and not very well drained silt loams and loams.[38]

5.5.6 Hydrology

The generally level upland relief of Rice County is broken by the valleys of the Cannon River and its tributaries and by the headwater valleys of the Zumbro River. In the eastern part of the county, the morainal ridges form an interrupted belt of irregular hills extending north and south a short distance east of Faribault. This moraine marks the eastern border of the Late Wisconsin ice sheet.

Terraces, as much as two miles wide, occur along the Cannon River. The terrace gravels include the deposits made by glacial streams flowing from the ice sheet lying to the west, through the Cannon River valley, to the Mississippi River. The gravel of the terrace deposits readily absorbs water and readily discharges it to the valleys.

[37] Minnesota Geological Survey Rice County Atlas C-9, Parts A & B. 1995
[38] http://soils.usda.gov/soil_survey/surveys/pdf/mn_rice.pdf

The Project site slopes gently to the northwest with a deep drainage-way that enters the site from the west, passes through the site, and exits the site in the northeast corner. The drainage-way is a tributary to the Cannon River and flows to the northeast.[39]

5.5.7 Rare and Unique Natural Resources

The proposed Project site is located primarily on what was historically native prairie land and Maple-Basswood forest. As a consequence the area provides a suitable habitat for some species listed by the MDNR as threatened or endangered. The prairie bush clover (Lespedeza leptostachya) and the Minnesota dwarf trout lily (Erythronium propullanss) are listed as federally threatened and endangered, respectively, and are documented to occur in Rice County. The U.S. Fish and Wildlife Service (USFWS), Region 3, has reviewed the location and description of the proposed project. The USFWS has determined that the Project activities are unlikely to adversely affect any federally listed or proposed threatened or endangered species or adversely modify their critical habitat.[40]

The MDNR (Minnesota Natural Heritage and Nongame Research Program) maintains a list of plants and animals considered rare in the state. A list of those found in Rice County is contained in **Appendix C.**[41]

Additionally, the vegetation on the Project site was examined during the wetland delineation surveys conducted in July and September, 2002. No threatened or endangered fauna species were reported by Stanley Consultants within the survey.

5.5.8 Prohibited Sites

The EQB has identified (Minnesota Rules part 4400.3450) certain areas, termed "Prohibited Sites", in which no LEPGP can be sited. No prohibited sites are found on or in the immediate vicinity of the Project site.

Several Wildlife Management Areas (WMAs) are located within a four-mile radius of the Project site.[42] These include the Dwyer WMA, the Faribault WMA, the River Bend Nature Center, and the Falls Creek County Park. Minnesota's WMA are home to numerous animals and provide recreation for the citizens of the state.

One scientific and natural area (i.e., the Cannon River Trout Lily SNA) is located two miles east of the Project Site (**Figure 9**). The Cannon River Trout Lily SNA is a maple-basswood remnant of the Big Woods and features Minnesota's only federally endangered species, the dwarf trout lily.

5.6 Cultural Resources

IMA Consulting, Inc. (IMA) completed an archeological and historic structures survey for the proposed project site.

[39] Minnesota Geological Survey Rice County Atlas C-9, Parts A & B. 1995
[40] United States Department of the Interior communication, August 8, 2002.
[41] http://files.dnr.state.mn.us/ecological_services/nhnrp/endlist.pdf
[42] Minnesota County Biological Survey Map Series No. 8 (1995), Rice County, Minnesota

5.6.1 Archeological Investigation and Historic Structure Survey

Along with the archeological and historic structures survey, IMA conducted a pedestrian survey and a shovel test of the proposed Project site.

Several recorded archaeological sites were identified within a one mile radius of the Project site (**Figure 10**).

5.7 Transportation

The primary transportation issue related to the project is traffic on local roads and highways. Railways will not be utilized for the Project. Transportation of the primary fuel for the Project will be through existing natural gas pipeline infrastructure.

5.7.1 Roadways

The Project site is located west of Highway 76, south of 170th Street West, and east of Interstate 35.

The Rice County Highway Department has indicated that the 2001 average daily traffic for Highway 76 was 180 vehicles per day.

Depending upon logistics, paving may be required of up to ½ mile of existing roadway or construction of a new plant entrance road.

5.7.2 Airport

The Faribault Municipal Airport is a general aviation airport that serves the Faribault and Rice County areas. It is located approximately two miles southwest from the Project site.

It is owned and maintained by the City of Faribault and features a paved southeast to northwest runway extending 4,254 feet.

FEP will need to secure a flight hazard determination from the Federal Aviation Administration (FAA). This process involves providing the FAA with the general configuration of the facility along with elevations of the buildings and stack height. The

FAA will most likely issue a finding that will include provisions for lighting the stack due to its height (170') and proximity to the airport.

5.8 Socioeconomics

Socioeconomics refers to the economic, social, and demographic characteristics of a region. The existing socioeconomic characteristics of Rice County, the State of Minnesota and the Twin Cities Metropolitan area were reviewed by the EQB staff.

Rice County comprises a land area of 496 square miles in the southeast portion of Minnesota, approximately 50 miles south of the cities of Minneapolis and St. Paul. Rice County, which is basically rural, has only two cities with a population of more than 12,000 - Faribault and Northfield. The northeastern area of the county is characterized by rolling hills and small woods, with sparsely located farms. The main crops include corn, soybeans, and wheat. With its large number of lakes, the western portion of the county attracts outdoor enthusiasts and summer campers. The northeastern region includes Nerstrand Woods State Park. In addition to Faribault, the county seat, and Northfield, there are four small cities and fourteen townships

The 2000 census reports Rice County's population at 56,665 and the City of Faribault with a population of 20,818. The population of Rice County increased at a rate just over the population increase throughout Minnesota. The region experienced a positive net migration. The Twin Cities metropolitan area contains over half the State's total population.[43]

Table 6 presents the recent population figures for Rice County, the Twin Cities and the State of Minnesota.

The population of Faribault during the 2000 census included 10,751 males and 10,067 females, with a racial/ethnic breakdown reported as 89.9% white, 2.7% African American, 0.7% Native American, 1.8% Asian, 0.1 % Native Hawaiian or other Pacific Islander, 3.3% as other race and 1.5% are two or more races.

The Project will result in no displacement of any persons. The proposed Project site is currently farmland and one owner owns the land.

The construction and operation of the FEP will require the combined efforts of many individuals from a wide range of professional and skilled disciplines. A large geographic area is necessary to gather such a large number of employees with such a wide array of skills. Statistics indicate that a large number of construction workers already reside in the Twin Cities metropolitan region. Moreover, since the highway system is well-developed, skilled workers will be able to commute to the project site from relatively long distances.

During the peak construction period, the Project would be expected to generate 217 jobs, approximately five (5) million dollars in local expenditures, and a payroll of approximately thirteen (13) million dollars. Once in operation, the plant would have approximately 13 full-time employees, who will likely reside in the local community.

[43] Minnesota Planning Agency, State Demographic Center (http://www.mnplan.state.mn.us/demography/index.html)

The Rice County District one Hospital is located in Faribault and employs approximately 265 people. The City of Faribault also has four nursing homes providing approximately 341 beds. The City of Northfield owns and operates the Northfield City Hospital, which employs 180 people and has a medical staff of 22. The hospital was recently expanded and remodeled. Long term health care facilities in Northfield include the 120-bed Three Links Care Center, which employs a staff of 150, and the 40-bed Northfield Retirement Center.[44]

Rice County is served by eight school districts, the largest of which are the Faribault Independent School District 656 and the Northfield Independent School District 659. The Faribault Independent School District serves the City of Faribault as well as approximately 75 square miles of the surrounding area within the County. The District had an enrollment of 4,290 for the 1995/96 school year in grades K-12. The District recently issued $35.7 million of general obligation school bonds for the purpose of constructing a new elementary school and remodeling existing facilities.[45]

Northfield Independent School District serves the City of Northfield as well as approximately 176 square miles of the surrounding area. The District had an enrollment of 3,663 in grades K-12 for the 1995/96 school year. In March of 1996, the District issued $17,445,000 of general obligation school bonds. The proceeds of these bonds have been used to remodel and construct an addition to the high school and construct a new elementary school.[46]

Post-secondary education is available at St. Olaf College and Carleton College, which are four-year private schools located in Northfield, and at the South Central Technical College, which offers one-year and two-year courses, is located in Faribault. Rice County contains 12 County parks totaling 1,100 acres. The west and southwestern areas of the County are enhanced by numerous lakes, rivers, and wetlands. Remnants of Minnesota's Big Woods Forest exist in Nerstrand State Park in the east central area of the County. There are extensive trail systems in Rice County for hiking, biking, skiing, snowmobiling, and equestrian use.[47]

The Faribault Fire Department (FFD) provides emergency response services for the city of Faribault and surrounding townships. The department is comprised of one Director of Fire and Code Services; nine full-time firefighters, thirty part-time firefighters and a full time department secretary. The FFD building is located at 122 Northwest 2nd Street in Faribault.[48]

The Faribault Police department (FPD) is a full service agency made up of administration, patrol, investigations, records, and special services unit for parking,

[44] http://www.co.rice.mn.us
[45] Ibid
[46] Ibid
[47] Ibid
[48] http://www.faribault.org/fire_code/annual_report/Annual%20report%20Fire.pdf

animal control and nuisance abatement. There is approximately 18 patrol officers staff within the department.[49]

5.9 Visual Aesthetics

The dominant visual features of the proposed Project site include agricultural lands, sparse woodlands, wetlands and drainage-ways. The visual features of the surrounding area include farmsteads, transmission lines, Interstate Highway 35 and other roadways (Highway 76 and 170th Street West).

The landscape is generally flat with few woods, allowing for a long line of sight from a distance. The site elevation on the Project property ranges from approximately 1,006 feet to approximately 1,010 feet above sea level.

The woodlands are generally associated with drainage-ways and are a mixture of deciduous trees and shrubs, consistent with the natural potential vegetation of Rice County, which is Maple-Basswood forest.

[49] http://www.faribault.org/police/ann_report/AR2001%20Manual.pdf

6.0 Anticipated Environmental Impacts

This section provides an analysis of anticipated impacts to the environment from construction of the power plant on either of the two sites considered. The impacts evaluated include those to existing water resources and to the air quality. The impact of the proposed plant on noise, vegetation, fish, wildlife, traffic, and cultural resources is also discussed. The impact of the plant on various socioeconomic factors is also considered. Consistency with the Faribault Land Use Plan is also taken into account.

6.1 Land Use

The Faribault Land Use Plan of 1989 shows the parcel proposed for the Project site as a potential area for industrial development (**Figure 7**). As described in Sections 4.6 and 4.8 the area already contains a significant amount of utility-related features including a major natural gas pipeline and electric transmission line corridor containing structures and lines.

The preferred site is zoned as a heavy industrial district (I-2), in which a power plant is a conditional use.

6.2 Water Resources

6.2.1 Surface

The surface water resources of the proposed Project site are limited to the drainage-ways identified in Section 5.2.1.

Since the developed portion of the site will disturb more than five acres of land, an application for coverage under a MPCA NPDES General Storm Water Discharge permit will be required prior to construction.[50] Construction activities regulated under the permit include landscape clearing/grubbing, grading, excavation, road building and construction.

The conceptual construction plan for the Project will include (1) a Temporary Erosion and Sediment Control Plan (TESCP) and (2) a Permanent Erosion and Sediment Control Plan (PESCP).

The greatest potential for impacts to surface waters occurs during the construction phase in the form of sediment loading from erosion.

A TESCP will be developed as part of the NPDES permit application. The plan will include best management practices (BMPs) to prevent sediment from leaving the

[50] http://www.pca.state.mn.us/water/stormwater/stormwater-c.html

developed portion of the site and entering the drainage ditch or wetland during construction activities. The TESCP will include details about erosion control methods.

These methods are expected to include the use of staked straw bales, silt fencing, and storm water collection ponds.

In addition to features that will be installed and maintained to prevent erosion and sedimentation, pollution prevention management measures will be developed and followed. These will include the monitoring of onsite vehicles for leaks and the performance of regular preventive maintenance to ensure proper operation and reduce the chance of leaks. No "topping off" of fuel tanks will be allowed, thus reducing the possibility of spills. Storage tanks and associated loading areas will be protected by secondary containment structures (i.e., impervious pads and berms). Runoff in and around these areas will be directed to a sump to capture any spills.

Site development will increase the amount of impervious area, thus increasing the volume of storm water runoff. Impervious areas will be limited to the onsite buildings, structures, tanks and roadways. Structures such as the switchyard will not have impervious surfaces.

A PESCP, including a storm water retention pond, will be developed as part of the NPDES permit application. The NPDES General Permit requires a permanent wet sedimentation basin to treat storm water runoff from projects resulting in a net increase of more than one acre of impervious surface.

Spill containment measures will be provided for all non-water storage vessels, liquid-filled equipment (e.g., transformers and breakers), and equipment with high lubricant use (gas turbine generator skids, fuel gas compressors, lube oil storage area). Fuel unloading areas will be designed to contain spills by utilizing such features as impervious surfaces, curbing and slope. Storm water contained in these areas will be routed through an oil/water separator prior to release or collected and held for off-site disposal. Detailed designs of the appropriate spill containment systems will be developed during the Project's final design process.

Implementation of these activities will protect the water quality and aquatic organisms of both onsite and offsite surface water resources.

6.2.2 Ground Water

As discuss in Section 5.2.2, the project will obtain its water from on-site production wells. The wells will extract approximately 1.9 million gallons per day from the underlying Jordan Formation. The wells will be completed to an approximate depth of 700 to 800 feet below grade.

A water use (appropriation) permit from the MDNR is required for all users withdrawing more than 10,000 gallons of water per day or 1 million gallons per year.

There are several exemptions to water appropriation permit requirements:

- domestic uses serving less than 25 persons for general residential purposes,
- test pumping of a ground water source,
- reuse of water already authorized by a permit (e.g., water purchased from a municipal water system), or
- certain agricultural drainage systems.

All active water appropriation permit holders are required to measure monthly water use with an approved measuring device to an accuracy of 10 percent and report water use yearly. Permit holders receive water use reporting forms each year to report their water use. Completed forms and processing fees are due by February 15 of each year.

The major water use categories in Minnesota are Power Generation, Public Supply, Industrial Processing, and Irrigation. The power generation category, water used to cool power generating plant equipment, is historically the largest volume user and typically relies on surface water sources. Power Generation use is typically non-consumptive, in that most of the water withdrawn is returned to its original source.

Consumptive use is defined as water withdrawn that is not directly returned to its original source. Under this definition, the LEPGP proposed by FEP, which will extract groundwater from the Jordan Aquifer and discharge the spent cooling water to an artificial wetland and surface drainage-way, would be considered a consumptive use.

When a high capacity well (i.e., production well) is pumping, a portion of the aquifer around it is dewatered in a pattern known as a cone of depression. Other, nearby wells may be impacted by the cone of depression. These wells may experience lower water levels and consequently have problems getting water if water levels fall below that of the well pump. This condition is referred to as "well interference." Most well interference problems tend to be localized and short in duration, but being without water is a major inconvenience and can cause damage to well pumps. Some problems can be resolved by lowering the pump in the impacted well, but in some situations it may be necessary to construct a new water supply well.

Minnesota Statutes §103G.261 establishes domestic water use as the highest priority of the state's water when supplies are limited. Procedures for resolving well interferences are defined by Minnesota Rules Part 6115.0730. Domestic well owners and municipal water suppliers that have problems obtaining water and believe the situation is due to the operation of a high capacity well that pumps in excess 10,000 gallons per day or one million gallons per year can submit a well interference complaint to the MDNR for investigation. However, before the MDNR will investigate a well interference complaint, the well owner must have the well inspected by a licensed well driller to determine if the water supply problems are related to the condition of the domestic well.

Preliminary discussions with the MDNR appear to suggest that the proposed pumping rate and water usage anticipated by the operation of the proposed Project should not have an adverse impact on water supplies. However, a final determination can not be made until the groundwater appropriations permit has been submitted to and reviewed by the MDNR.[51]

Groundwater, in the near surface water bearing zone or water-table aquifer, may be encountered during construction excavation. Dewatering for construction may require a MDNR General Permit (i.e., 97-0005). This general permit authorizes temporary water appropriations for construction dewatering, landscaping, dust control, and hydrostatic testing of pipelines, tanks, and wastewater ponds.[52] During construction, temporary dewatering/storm water ponds will allow percolation back into the water-table aquifer.

A fuel or oil spill, if not controlled, could have adverse impacts on the ground water quality. Operation personnel at the proposed facility will be required to take special precautions when handling fuel and oil, and tank and unloading areas will be protected by secondary containment structures and tanks will have double containment.

Should a fuel or oil spill occur during construction, the contaminated soils would be removed and hauled away by a licensed contractor for disposal at a licensed facility. Construction materials delivered to the site, including chemicals, fuels, and lubricants, will be typical of those required for this type of project and will not constitute a threat to the ground water in their normal use. All storage of chemicals and fuel onsite will be provided with secondary containment and all unloading areas will have their own containment.

Petroleum products will be stored in clearly labeled and tightly sealed containers or tanks. Any asphalt used onsite will be used according to the manufacturer's recommendations. Construction activities are not expected to have an impact on the ground water.

In addition, onsite vehicles will be monitored for leaks and receive regular preventive maintenance to ensure proper operation and reduce the chance of leaks. No "topping off" of fuel tanks will be allowed, thus reducing the possibility of spills.

6.2.3 Flood Plains

As stated in Section 5.2.4 the Project site is not within a recognized floodplain as determined by a review of the FEMA database.

6.2.4 Wetlands

As described in Section 5.2.3 six (6) wetland areas were identified and delineated on the Project site. In most cases altering a wetland typically by draining or filling will require a

[51] Personal communication with Randy Bradt, Hydrologist, MDNR.
[52] Department of Natural Resources, General Permit for Temporary Water Appropriations. June, 1997.

permit or some type of regulatory authorization. In Minnesota, a number of agencies could have jurisdiction over a wetland depending on the circumstances associated with the wetland and the proposed project. Agency involvement can occur on a federal, state, or local level and could include the U.S. Army Corps of Engineers, U.S. Department of Agriculture Natural Resources Conservation Service, the MDNR, the MPCA, and the Rice County Soil and Water Conservation District.

No structures or foundations are proposed within any of the six (6) identified wetland areas. However, the proposed locations of the storm-water retention pond and created wetlands do overlap the delineated wetland areas D and F.

The applicant may be required to fill-out and submit a Minnesota Local/State/Federal Application Form for Water/Wetland Projects for a determination on whether the identified wetlands are eligible for regulation or exempt.[53]

6.3 Noise

Noise standards have been established by the MPCA, Minnesota Rules part 7030.0040, subp. 2. The MPCA is the regulatory agency responsible for the enforcement of these standards. The standards are consistent with speech (hearing and conversation), annoyance, and sleep requirements for receivers within areas classified according to land use activities.

The MPCA has established various noise area classifications (NAC) and has established noise standards for each classification. The NAC area classification is based on the land use activity at the location of the receiver, and the NAC determines the applicable noise standard. Lower noise levels are required in residential areas, for example, than in industrial zones.

The four noise area classifications are: NAC-1, NAC-2, NAC-3, and NAC-4. Some of the land use activities under NAC-1 include household units, hospitals, religious services, correctional institutions, and entertainment assemblies. NAC-2 land use activities include mass transit terminals, retail trade, and automobile parking. Some NAC-3 land uses include manufacturing facilities, utilities, and highway and street ROW. NAC-4, which has no noise limits, consists of undeveloped and under construction land use areas.[54]

Table 7 sets forth the Minnesota Noise Standards for the appropriate land use.

The Project site is located in undeveloped agricultural land. The nearest noise sensitive area (NAC-1) is located approximately 800 feet to the northeast from the proposed combustion turbine location at the site. Sound levels at this residence and other nearby residences must meet the NAC-1 standard.

[53] http://files.dnr.state.mn.us/waters/forms/pub_app.pdf
[54] http://www.pca.state.mn.us/programs/noise.html

The Project will incorporate attenuation design measures, as needed, to meet the appropriate and relevant noise regulations. Examples of noise attenuation measures that can be incorporated into the design of the project include: (1) equipping the air inlets and exhaust stacks with silencers; (2) providing shrouding over the transition ductwork in the HRSGs; (3) enclose or equip the boiler feed pumps with low-noise pumps and motor assemblies; (4) incorporate low-noise fans within the cooling towers; and (5) landscaping to help mitigate the propagation of sound from the facility. While the final measures will be developed through consultation with the relevant equipment vendors, the attenuation mitigation is expected to include several of these measures.

Manufacturer supplied data of noise generation estimates were obtained for the various Project components. Where estimates were unavailable, estimated values from empirical equations contained in the Electric Power Plant Environmental Noise Guide (1984) were used. A noise prediction model (FHWA TNM, version 1.0) was then used to calculate the predicted maximum noise levels at various distances radiating from the proposed Project site.[55]

The predicted sound levels of the operation of the Project range from 62 to 65 dBA at the boundary of the developed portion of the site. The nearest residences are located approximately 800 feet to the east, approximately 2,000 feet to the north, and approximately 1,000 feet to the south of the proposed developed portion of the Project site. Sound levels from Project operation at the nearest receptor are predicted to be 50 dBA.[56]

The predicted facility sound levels are shown in **Table 8**. **Figure 11** illustrates the modeled data.

6.4 Air Quality

6.4.1 Permitting

As both a requirement of federal law (the Clean Air Act) and state law (Minn. Stat. §116.07), Faribault Energy Park is required to obtain an air permit from the Minnesota Pollution Control Agency. The kind of review the MPCA will conduct and the conditions that are included in any air permit that is issued will depend on the quantity and type of pollutants that will be emitted during operation of the facility.

New Source Review

Large new sources of air pollution are subject to what is called New Source Review under the Clean Air Act. The large sources to which New Source Review requirements apply are called major sources. What is a major source depends on whether the source will be located in an area that meets air quality standards or in an area that does not meet

[55] Noise Evaluation Faribault Energy Park. Stanley Consultants, February 2003.
[56] Ibid

air quality standards (*i.e.* a nonattainment area). As described in section 5.4, the area where this new facility will be located meets the applicable air quality standards and therefore is an attainment area.

A new fossil fueled power plant in an attainment area is a major source if it has the potential to emit over 100 tons per year of any of a number of regulated pollutants such as sulfur dioxide and nitrogen oxides. Potential to emit is generally determined by calculating the maximum amount of emissions that would be emitted by the facility if it were operated at full capacity for every hour of every day for a year. A major source in a nonattainment area is one that has the potential to emit an even smaller amount of pollutants, but since the Faribault area is in attainment for all pertinent pollutants, it is not necessary to address major facilities in nonattainment areas.

The Faribault facility has the potential to emit more than 100 tons per years of each of the following pollutants: particulate matter, nitrogen oxides, sulfur dioxide, carbon monoxide, and volatile organic compounds. The amount of each of these pollutants that could be potentially emitted is shown in **Table 9.** Therefore, the Faribault facility is a major source.[57]

Prevention of Significant Deterioration (PSD)

Under the Clean Air Act, any person proposing to construct a new major facility in an attainment area must undergo review under a federal program called Prevention of Significant Deterioration (PSD). In order to satisfy the requirements of the PSD program and to obtain a permit, the owner of the new facility must show the following:

(1) that emissions from the new facility will not cause an exceedance of ambient air quality levels designed to prevent significant deterioration of air quality (called PSD increments); and

(2) that the facility will utilize the best available control technology (BACT) to control emissions out the stack for each pollutant regulated under the PSD regulations.

The PSD increments are specific amounts of certain pollutants that can be added to the concentration in the ambient air. The specific pollutants are sulfur dioxide, particulate matter, and nitrogen dioxide.

BACT is defined as the "maximum degree of [emission] reduction" achievable taking into account economic, energy, and environmental factors. The Minnesota Pollution Control Agency, using guidance from the United States Environmental Protection Agency, determines what BACT requires for any particular new source. Each BACT analysis is conducted on a case-by-case basis and is evaluated

[57] PSD Air Quality Permit Application. Faribault Energy Park, June 2003

based on the energy, environmental, economic, and other impacts associated with the new source. Once evaluated and assembled by the project proposer, the reviewing authority will then specify an emission limitation for each pollutant that the owner or operator must comply with in order to achieve the maximum degree of reduction of emissions. The reviewing authority may also require the source to use alternative equipment, work practices, or operational standards.[58] BACT is at least as stringent as any New Source Performance Standard applicable to the source category in which the new facility falls.

6.4.2 Criteria Pollutants

The combustion turbine and the auxiliary boiler at the Faribault facility will each have the capacity to burn natural gas or fuel oil. The combustion of either fuel generates emissions of "criteria pollutants." *See* discussion in Section 5.4.1 for Criteria Pollutants. Other emission sources such as the emergency generator and fire pump will use fuel oil. The total potential emissions of the facility while operating on fuel oil are shown in **Table 10**.

Emissions of Criteria Pollutants

Faribault Energy Park submitted a PSD Permit Application to the MPCA in June, 2003. In the Application, FEP identified the amount of certain pollutants that will be emitted over the course of a year from the facility. Predicted annual emissions from the new facility are shown in **Table 11**.

In its PSD Air Quality Permit application, FEP requests that a federally enforceable limit on SO_2 emissions of 132 tons per year be included in the permit. This is well below the potential emissions the facility could emit if the facility were operated on fuel oil, since fuel oil has a greater potential to emit SO_2 than natural gas. The lowest sulfur content fuel oil commercially available is No. 2 fuel oil with a maximum regulated sulfur content of 0.05% by weight. Using the commercially available 0.05% low sulfur fuel oil, the combustion turbine would be restricted to 32.4 million gallons of fuel oil per year or equivalently 2,500 hours a year operating at 100% capacity to meet the 132 ton per year limit.

The emergency generator and fire pump engine will use fuel oil and each will be limited to 500 hours of operation per year. The emergency generator will only be used to provide electricity at the facility should normal power be disrupted; it will not be used to produce electricity that will be sold. The emissions from the emergency generator were included in the PSD Air Quality Permit application and are also shown in **Table 10**.

Ambient Air Quality Impacts

Air quality dispersion modeling was performed by Stanley Consultants for NO_X, PM_{10}, and SO_2 for various operating scenarios (ambient average, expected high and expected

[58] http://www.epa.gov/ttnnsr01/gen/wkshpman.pdf

low temperatures). **Table 12** contains the estimated range of maximum contributions to 24-hour average ground level concentrations of sulfur dioxide, nitrogen oxides, and particulates during operation at rated capacity for the proposed facility.

The dispersion modeling shows that emissions from the proposed facility will not cause any exceedances of the ambient air quality standards or the PSD increments in the surrounding area.

6.4.3 Air Toxics

The Minnesota Pollution Control Agency examines the issue of emissions of toxic chemicals from the combustion of natural gas and fuel oil.

Air Toxics Review

As part of its PSD permit application, FEP included a section entitled Air Toxic Review (ATR). The ATR process was designed by the MPCA to provide air toxics data to be used in the development of the facility's air quality permit.[59] The ATR estimates the level of human exposure to toxic air pollutants and the resulting increased risk of health problems as a result of inhalation of these pollutants.

Chemicals of Potential Concern (COPC), those chemicals that could be released from the proposed project, have been identified by FEP. These chemicals are shown in **Table 13**.

FEP performed air quality dispersion modeling for the chemicals of potential concern. The calculated emission rates and potential contaminant concentrations were used to determine the maximum hourly and average annual exposure levels for the COPCs. The results are shown in **Table 14**.[60]

The exposure assessment quantifies the uptake and intake of COPCs via the inhalation route of exposure for both acute and chronic exposures. The public health risk estimates are then calculated based on this exposure assessment, combined with toxicity information gathered during the COPC hazard identification.

For carcinogens, an excess lifetime cancer risk (ELCR) is determined. The ELCR estimate is an upper-bound probability that an individual exposure during a lifetime to a contaminant could result in cancer. If the ELCR for each contaminant evaluated is less than or equal to one in one hundred thousand (1×10^{-5}), the Minnesota Department of Health (MHD) considers the risk negligible.[61] **Table 15** contains the calculated COPC excess lifetime cancer risk.[62]

For non-carcinogenic health effects, the US EPA have stated that it is believed that an exposure level exists below which no adverse health effects would be expected. The hazard quotient is expressed as the ratio of the estimated intake to the reference dose.

[59] Air Toxics Review Guide. MPCA-Policy & Planning Division. March 2000
[60] PSD Air Quality Permit Application. Faribault Energy Park, June 2003
[61] http://www.health.state.mn.us/divs/eh/risk/cancerrisk.html
[62] PSD Air Quality Permit Application. Faribault Energy Park, June 2003

The value is used to evaluate the potential for non-cancer health effects, such as organ damage, from chemical exposures. If the hazard quotient is less than or equal to one, then no adverse health effects are expected as a result of exposure.[63] The COPC hazard quotients for toxic effects, both for acute and chronic exposures, are presented in **Table 16** and **Table 17**.[64]

The result of the criteria pollutant modeling as it relates to acute and chronic receptors is presented in **Table 18**.[65]

Air Emissions Risk Analysis

In September, 2003, the MPCA released a guidance document on Air Emissions Risk Analysis (AERA).[66] The AERA process was developed to streamline the former ATR process, and to incorporate some additional issues (i.e., multimedia exposure, persistent bioaccumulative toxics, senitizers, etc.) beyond the inhalation assessment utilized in the ATR process.

On February 20, 2004, FEP submitted a copy of an AERA document for this project to the staff of the EQB. The hazard quotients and ELCR results from the AERA are contained in **Table 19**.

6.4.4 Control Equipment

Faribault has proposed the best technology to control emissions of all pollutants from combustion of natural gas and fuel oil. This equipment is described in Section 4.7.

For control technologies such as SCR that use ammonia to control NO_X emissions, some ammonia may pass through the catalyst unreacted and be emitted as "ammonia slip." Typically, ammonia slip is limited to 10 parts per million by volume (ppmv) or is set at some other level by a regulatory authority (permit condition) to protect public health.

Typical lifetime for an SCR catalyst on a natural gas turbine is 7 to 10 years. Gradually ammonia slip increases as catalyst activity decreases over time.[67] FEP has proposed to maintain the NOx emissions to 3 ppmv from the exhaust with a 10 ppmv ammonia slip. As part of the air toxics review, a site-specific analysis of health effects from the ammonia slip was performed. The analysis determined that the maximum one-hour ammonia concentration that any person may be exposed to from the facility's operations is 1000 times below the threshold (i.e., acute and chronic hazard quotients of 2.51E-03 and 5.34E-04, respectively) that would create adverse health affects (**Tables 15 and 16**).

[63] http://www.epa.gov/ttn/atw/nata/gloss.html
[64] PSD Air Quality Permit Application. Faribault Energy Park, June 2003
[65] Ibid
[66] Facility Air Emissions Risk Analysis Guidance, version 1.0. MPCA September 2003.
[67] Gas turbine Environmental Siting Considerations, EPRI, Palo Alto, CA: 2000.1000651

6.4.5 Other Sources of Air Pollution

Project construction will produce dust from earth moving equipment and construction vehicle traffic. The construction period will be relatively short and dust generation will be intermittent depending upon the construction activity. Localized impacts during construction will be controlled through the application of water or other dust control measures.

Once the facility is operational, the primary dust source will be due to travel on any unpaved roads on site. The number of trips to the facility is expected to be small and main access roads to the site are expected to be paved, all of which will mitigate vehicle generated dust.

6.5 Vegetation and Wildlife

6.5.1 Vegetation

The construction of the Project will require the removal of vegetation in the area to be developed, the "developed portion of the property." The site will be cleared of vegetation to be able to allow the movement of the equipment needed to construct the necessary foundations and structures associated with the Project. Additional vegetation will be removed to prepare the area for construction worker parking and temporary construction equipment and material storage (laydown). It is anticipated that the construction, worker parking area and the laydown areas will be re-vegetated upon completion of construction and as needed to control soil erosion.

The property to be acquired for the Project is 33-acres and the area to be cleared is anticipated to include approximately 15 acres. The vegetation removed will include that occurring in the cultivated field and a portion of the surrounding vegetation as described in Subsection 5.5.1. Depending on the specific layout of the facility, some of the grub areas around the site that contain larger trees may be able to be salvaged.

6.5.2 Wildlife

There is a potential for impacts to wildlife during both construction and operation of the Project. Impacts of construction on wildlife may include loss or modification of habitat; direct loss of wildlife through incidental mortality; and disturbance of adjacent habitat due to increased noise and human activity and the resulting displacement of some wildlife from the immediate area.

Due to the ability of wildlife to move and the Project's relatively small area of disturbance, neither direct losses of wildlife nor losses of habitat are expected to be significant.

The anticipated Project emissions were compared against their corresponding secondary National Ambient Air Quality Standards (NAAQS). The secondary NAAQS were

established to protect public health and environmental welfare from any adverse effects of air pollutants (environmental welfare includes the protection of wildlife.) Ambient concentrations below the secondary NAAQS will not result in harmful effects for wildlife.[68]

6.5.3 Threatened and Endangered Species

As described in Subsection 5.5.7, no state or federally-listed threatened or endangered species are located on the proposed site. In addition, no habitat for such species was identified.

6.6 Cultural Resources

As detailed in Subsection 5.6.1, a review of the proposed Project site by IMA Consultants was conducted.

6.6.1 Archeological and Historic

No cultural materials were discovered during the pedestrian survey or shovel testing. The proposed project is not expected to have any adverse effects on National Register-eligible properties, and no further work was recommended by IMA.[69]

6.7 Transportation

As indicated in Section 5.7, the proposed Project site is bordered by three roads (i.e., Interstate 35, 170th Street and Highway 76.

6.7.1 Roadways

During construction, the traffic increase on the local county and township roads will be intermittent and will vary with the phases of the construction activity. The number of construction workers expected may reach 250 during peak construction activity. Additional traffic due to the delivery of equipment and supplies will be expected.

Local motorists will be temporarily inconvenienced by this increase in traffic activity. This impact is expected to last during the construction period of approximately 21 months.

During operation, the facility will generate little additional traffic. The remote start capability of the unit means that 24-hour staffing will not be required. The number of staff needed to maintain and operate the facility is estimated at 24 employees.

[68] PSD Air Quality Permit Application. Faribault Energy Park, June 2003.
[69] IMA Consulting Report, August 7, 2002

6.7.2 Airport

As stated in Section 5.7.2, the Faribault Municipal Airport is located approximately two miles southwest of the Project site (**Figure 2**). The FAA will most likely require lighting for the 170 foot exhaust stack.[70]

6.8 Socioeconomics

The direct socioeconomic impacts of construction will generally coincide with the construction period. These direct impacts include the effects on demographics, employment, income, and community services and facilities.

Table 20 shows the estimated peak number of workers, by major discipline, required for construction and startup during each quarter of the construction period. The workforce is expected to peak during the fourth quarter of 2004, with an expected peak workforce of 250.[71]

Most of the construction workforce is expected to be hired from within the regional area. Given the close proximity to the Twin Cities metropolitan area, it is anticipated that most of the construction management (CM) and support category workers will be hired from the regional area.

Personal income impact estimates were developed by applying an average wage rate to the projected man-hours of employment. All figures are in constant 2002 dollars.

Table 21 shows the total estimated direct salary by crew during construction. An estimated total of $13.5 million in total direct wages will be paid to workers on the construction project.[72]

The Project has a tentative commercial operation date of 2006. Both direct and indirect socioeconomic impacts will be created by the operation of the plant.

The Project will permanently employ 13 full-time personnel to operate the plant and perform routine maintenance. The remote start capability of the unit means that twenty-four hour staffing will not be required. Administrative staff and routine maintenance personnel will be present eight hours a day, five days a week. **Table 22** shows an estimated breakdown of operating staff during the three shifts.[73]

Personnel required for annual planned maintenance or major forced outage maintenance will be contracted for on a temporary basis directly from a maintenance outage contractor. During the planned outages and any forced outages requiring additional labor, maintenance crews will most likely perform the required maintenance on 8 hours shifts with occasional 12 hour shifts, as required.

[70] Title 14 of the Code of Federal Regulations CFR Part 77 (http://www1.faa.gov/ats/ata/ata400/oeaaa.html)
[71] Site Permit Application Faribault Enerfy Park, LLC. Stanley Consultants, September 2003.
[72] Ibid.
[73] Ibid.

Direct personal income impacts include the wages and salaries paid to the Project operating personnel. Approximately $2 million (2002 dollars) in direct salaries, not including benefits and bonuses, will be paid to full-time employees. Total annual wages paid to contracted maintenance personnel are estimated to be $8 million. Over the first 20 years of operation, approximately $40 million in direct wages (in 2002 dollars) will be paid to the operating staff and maintenance personnel.[74]

The owner/operators of the Project will contribute over $400,000 in property taxes annually.[75]

In addition to the direct employment and earnings impacts, indirect economic impacts will be generated from the construction and operation of the Project through economic multiplier, or ripple effects. Generally, multiplier effects refer to the direct and indirect employment and earnings created in a region due to an increase in final demand such as a new investment.

Indirect employment impacts are those created when construction workers spend their income on goods and services and businesses hire more workers to meet this increased demand. Additional jobs will be created as industries producing the plant equipment for the Project increase output and hire more workers.

Primary affected industries include the fabricated metal industry, which produces boilers, ductwork, valves, and pipe fittings; the non-electrical machinery industry, which produces turbines, generator sets, blowers, fans, pumps, and compressors; and the electrical and the electronic equipment industry, which produces electric motors, industrial controls, electric lighting, and wiring equipment. As these industries increase production, they will demand more inputs from their suppliers. Workers in these industries will also spend their income, further increasing the demand for goods and services. When the total economic repercussions created from the construction of the Project have filtered through the economy, the total employment impact will be a multiple of the direct construction employment at the site.

Similar to construction, the operation and maintenance of a power plant has a multiplier effect of 8.9 jobs and $0.2339 in earnings for the same dollar amounts invested.[76]

The total cumulative economic statewide benefit is estimated to be $174 million, as shown in **Table 23**. These calculations assume a 30 year operating period.[77]

Demographic changes to the study area attributable to the construction of the Project could consist of population increases from relocating construction workers and families. Workers employed to construct the Project, and who are currently living within the

[74] Ibid.
[75] Personal communication. Radhika Lal, Dahlen, Berg & Company, December 24, 2003.
[76] Socioeconomic Impacts of Power Plants, EPRI, Palo Alto, CA: EA-2228
[77] Site Permit Application Faribault Enerfy Park, LLC. Stanley Consultants, September 2003.

regional area, are not expected to relocate. These persons will commute to work at the Project site.

The Electric Power Research Institute ("EPRI") report, *Socioeconomics of Power Plants*, indicated that construction workers will travel an average of 73 miles one-way on a daily basis to a jobsite, even up to a maximum of 115 miles one way.[78] The study, which analyzed the commuting patterns of workers on several electric generating facility projects, concluded that the long commuting distances were acceptable to workers due to the temporary nature of construction employment at a electric generating facility site.

A small increase in the local area population attributable to the plant construction can be anticipated.

The operations personnel will not be required until the final months of construction. At approximately that time, it is expected that they would relocate on a permanent basis.

Given the temporary duration of employment, it is assumed that construction personnel who relocate will rent an apartment or home during employment. The operations personnel and families will most likely purchase living accommodations due to the lengthy expected plant life.

The supply of housing in the study area can easily accommodate the small number of relocating workers and families.

Since the population increase during the construction period is expected to be limited, the increased demand for school, hospital, fire and ambulance, police, and utility services will not be significant. Similarly, since the number of employees required after the construction period and during the facility's operational life is small, no significant impact will occur on the demand for other community facilities and services due to relocating personnel.

6.9 Visual Aesthetics

The Faribault Energy Park will provide a strong visual impression given the current landscape and the single exhaust stack 170 feet height. The Project site is not a heavily populated area. There are less than a dozen residences within a half-mile radius of the Project site. However, the proposed facility will change the view of people living in or working around the farm houses nearest to the site or traveling along Interstate 35. These people will see a commercial/industrial looking building.

Currently, there are no public recreation areas in the Project vicinity such as biking, hiking or horseback riding trails. In addition, there are no designated scenic vistas in the areas that will be impacted by the addition of the Project. None of the local roadways has been given a scenic designation by any governmental jurisdiction.

[78] Socioeconomic Impacts of Power Plants, EPRI, Palo Alto, CA: EA-2228

The appearance of the proposed Project was rendered in an illustration produced by Stanley Consultants (**Figure 6**). Using a computer, the illustration superimposes a three-dimensional view model of the proposed facility, reflecting the actual design of the Project, on an actual photograph of the area.

The closest residence sits on a parcel approximately 800 feet east of the proposed developed portion of the Project site. The residence is a farmstead and is surrounded by agricultural field and a large lawn area.

Despite the lack of trees and close proximity to the site, Project visibility will be limited to areas on the property with a direct line of sight to the proposed Project location and gaps in the perimeter tree cover. These locations appear to be limited to areas in the yard away from the residence itself. When visible at these locations, it is possible that the top fifty to one hundred feet of the exhaust stack will be visible. It is also possible, though not expected, that the tops of the heat recovery steam generators (HRSGs) will also be visible.

6.9.2 Impacts during Nighttime Hours

Federal Aviation Administration regulations governing air safety require certain tall structures to be marked with blinking lights or painted stripes to increase visibility to aircraft. The FAA generally only requires such markings for structures over 200 feet tall or that are within 20,000 feet of the runway of a public airport.[79] It is not certain at this point in the design of the Project whether such marking or lighting will be necessary. If lighting is determined to be necessary, options could include the installation of a dual lighting system that features a strobe beacon during daylight hours and a blinking red light after nightfall. This type of system is more expensive than a continuous strobe system, the minimum required by the FAA; however it will generate less of an impact on the few area residents that are expected to be able to see the tops of the exhaust stack.

Exterior lighting for the facility will be provided as required for security and safety throughout the station. Illumination levels will be in accordance with the Illuminating Engineering Society (IES) Handbook and code requirements.[80] To reduce the visibility of the facility, task lighting will be utilized instead of flood or area lighting. Lights will be shielded and/or directed towards the ground as much as practical.

6.10 Thermal and Explosive Hazards

Thermal hazards associated with the Project could include heat escaping into the atmosphere from the combustion exhaust stacks, heat released to the atmosphere through

[79] Title 14 of the Code of Federal Regulations CFR Part 77 (http://www1.faa.gov/ats/ata/ata400/oeaaa.html)
[80] Illuminating Engineering Society of North America. 1993. IES Handbook 8"' Edition. New York: IESNA and Illuminating Engineering Society of North America. 1984. Lighting for Parking Facilities. RP-20. New York: IESNA

the cooling towers and the heat contained within the surface water discharge of non-contact cooling water.

The temperature of the combustion exhaust exiting the 170-foot tall stack is expected to be approximately 120° F. This exhaust is dispersed by winds and/or rises prior to cooling. Therefore, there will not be any ground level impact associated with the thermal properties of the stack exhaust.

Warm, moist air exists out of the top of the cooling tower; in colder weather the air emitted from the cooling tower can become a visible plume.

Heated, non-contact cooling water will be discharged to a created wetland which will have a controlled spillage weir to the existing drainage-way.

Several fuels and chemicals that will be used during the construction and operation of the Project will have explosive properties. These include natural gas and petroleum (fuels for the electric generating equipment and Project-related vehicles, respectively). Best management practices will be followed to ensure the safe handling of these materials.

6.11 Hazardous Wastes

The facility will qualify as a Conditionally Exempt Small Quantity Generator (CESQG) under Minnesota Rules Chapter 7045. To be eligible for CESQG classification the facility must generate less than 100 kg or 220 lbs of non acute hazardous waste per month. This type of generator can not accumulate more than 1,000 kg or 2,200 lbs of waste on-site before delivering the waste to a permitted Treatment, Storage and Disposal (TSD) Facility.

CESQG regulations are relatively lenient compared to the other sets of hazardous waste regulations. CESQGs are not required to obtain an EPA Hazardous Waste Generator Identification Number according to federal law, but may be asked to have an ID number as a matter of policy imposed by the hazardous waste transportation/disposal company providing service.

As described in Subsection 4.10.5, spent hazardous substances such as oil periodically pumped from the oil/water separators, turbine wash water and periodic chemical cleaning wastes will be removed from the plant by a licensed hauler for disposal at a licensed facility.

7.0 Environmental Justice

Environmental Justice refers to the equable treatment and significant involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including any racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from the execution of federal, state, local, and tribal actions or policies. This should include: (1) that residents in potentially affected communities have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment or health; (2) that the public's input and contribution can influence the regulatory agency's decision; (3) that the concerns of all stakeholders involved are considered in the decision making process; and (4) that the process seeks out and facilitates the involvement of potential stakeholders.[81]

Many independent factors coalesced in the selection of the most appropriate location for the proposed Project. Most electric generation facilities need to be close to a sufficient source of fuel, electric transmission facilities, a source of sufficient water, and a suitable location for wastewater discharge. These facilities also require transportation access and sufficient land. Emphasis is also placed on finding a site that would allow the proposed Project to be a good fit in the community.

As described in Section 5.8 the population of Faribault during the 2000 census included 10,751 males and 10,067 females, with a racial/ethnic breakdown reported as 89.9% white, 2.7% African American, 0.7% Native American, 1.8% Asian, 0.1 % Native Hawaiian or other Pacific Islander, 3.3% as other race and 1.5% are two or more races.

The Project will result in no displacement of any persons.

The racial composition of the community or income levels of nearby residents did not affect the site selection decision by the FEP. The site was selected because it had extraordinary and unique characteristics that would allow it to be developed as an electric generation facility while minimizing impacts to the environment and the surrounding community. Similarly, natural gas and petroleum product pipelines are currently located adjacent to the site. Furthermore, the parcel is immediately adjacent to the Lake Marion-Faribault 115 kV transmission line. Finally, there are no major residential developments immediately adjacent to the site.

[81] http://www.epa.gov/compliance/environmentaljustice/

8.0 Environmental Regulatory Permits and Approvals Required

Table 24 contains a list of the anticipated permits and associated environmental approvals required for the Project. Compliance with the terms of all applicable and relevant regulatory permits and approvals will be a condition of any Site Permit issued by the Board.

9.0 Acronyms, Abbreviations and Definitions

ADT	average daily traffic
ANSI	American National Standard Institute
BACT	Best Available Control Technology
BMPs	Best Management Practices
Btu/kWhr	British thermal units per kilowatt-hour
CAA	Clean Air Act
CERCLA	Federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CGTs	Combustion gas turbines
CMP	Crop Management Program
CO	Carbon monoxide
CO_2	Carbon dioxide
CON	Certificate of Need
CT	Combustion Turbine
CY	Cubic yards
dBA	A-weighted decibel
DLN	Dry Low-NO_X
DOC	Department of Commerce
EA	Environmental Assessment
ECS	Ecological Classification System
EIS	Environmental impact statement
EMF	Electromagnetic field
EPA	U.S. Environmental Protection Agency
EQB	Environmental Quality Board
ELCR	Excess Lifetime Cancer Risk
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FEP	Faribault Energy Park
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
GE	General Electric
GHG	Greenhouse gas emissions
GISB	Gas Industry Standards Board
gpd	Gallons per day
HCP	Habitat Conservation Plan
HRSG	Heat Recovery Steam Generator
HVTL	High Voltage Transmission Line
IES	Illuminating Engineering Society
ISTS	Individual Septic Treatment System
kV	Kilovolt
LAER	Lowest Available Emission Rate

LEPGP	Large Electric Power Generating Plant
LOS	Level-of-service
LUG	Local Unit of Government
MW	Megawatts
MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
MDOT	Minnesota Department of Transportation
MMPA	Minnesota Municipal Power Agency
MPCA	Minnesota Pollution Control Agency
NAAQS	National Ambient Air Quality Standards
NET	National Emission Trends
NEPA	National Environmental Policy Act
NH3	Ammonia
NTI	National Toxics Inventory
NNG	Northern Natural Gas
NOx	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
OAHP	Office of Archaeology and Historic Preservation
PAH	Polycyclic aromatic hydrocarbons
Pb	Lead
PEMA	Palustrine emergent temporarily flooded
PEMC	Palustrine emergent seasonally flooded
PFOA	Palustrine forested temporarily flooded
PESCP	Permanent Erosion and Sediment Control Plan
PM	Particulate matter
PM_{10}	Particulate matter less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
POWHX	Palustrine open water permanently flooded excavated
ppb	Parts per billion
ppm	Parts per million
PSD	Prevention of Significant Deterioration
psi	Pounds per square inch
PSS	Potential Site Study
PUC	Public Utility Commission
SARA	Federal Superfund Amendments and Reauthorization Act of 1986, as amended
SCR	Selective catalytic reduction
SDS	State Disposal System
SIL	Significant Impact Levels
SO_2	Sulfur dioxide
SPCC	Spill Prevention Control and Countermeasure
STG	Steam turbine generator
USFWS	U.S. Fish and Wildlife Service
TESCP	Temporary Erosion and Sediment Control Plan

TSP	Total Suspended Particulate Matter
UHC	Unburned Hydrocarbon
USACE	United States Army Corp of Engineers
VOC	Volatile organic compounds

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Table 1
Faribault Energy Park
Facility Water Balance (59^{o} Fahrenheit Ambient Temperature)

Process	Quantity (gpm)
Raw Water Supply	1,037
Cooling Tower	1,033
Evaporative Loss	752
HRSG	29
Treated Effluent Discharged to Wetland	284
Discharged to Septic System	3

Source: FEP Site Permit Application, 9/2003

Table 2
Faribault Energy Park
Typical Natural Gas-Fired Power Generating Facility Chemicals

Chemical	Use	Quantity Stored Onsite	Form/Type
Aqueous Ammonia	Selective catalytic reduction	30,000 gallon bulk storage tank (Approximately 7 days' storage)	Liquid, 19% solution
Sodium hydroxide (NaOH)	Demineralizer resin regeneration and neutralization	4,800 gallon bulk storage tank (Approximately 45 days' storage)	Liquid, 50% NaOH
Sulfuric acid (H_2SO_4)	Demineralizer resin regeneration and neutralization	4,800 gallon bulk storage tank (Approximately 45 days' storage)	Liquid, 93% H_2SO_4
Disodium phosphate (Na_2HPO_4)	Boiler water pH and scale control	55 pounds (Approximately 30 days' storage)	Granular
Trisodium phosphate (Na_3PO_4)	Boiler water pH and scale control	55 pounds (Approximately 30 days' storage)	Granular
Amine	Feedwater pH control	225 gallons in 55 gallon drums (Approximately 14 days' storage)	Liquid
Oxygen Scavenger	Feedwater oxygen scavenger	55 gallon drum (Approximately 30 days' storage)	Liquid
Laboratory reagents	Various	Small amounts, generally less than 5 pounds each	Liquid and granular
Citric acid* (Temporarily onsite)	Chemical cleaning of HRSGs (Acid cleaning)	10,000 gallons (Used for initial chemical cleaning and may be used for future chemical cleaning. Approximately every 3 to 5 years)	Liquid, 50% solution
Sodium hydroxide (NaOH)* (Temporarily onsite)	Chemical cleaning of HRSGs (Degreasing)	2,000 gallons (Used for initial chemical cleaning and may be used for future chemical cleaning. Approximately every 3 to 5 years)	Liquid, 50% NaOH
Sodium carbonate Na_2CO_3* (Temporarily onsite)	Chemical cleaning of HRSGs (Neutralization)	30,000 pounds (Used for initial chemical cleaning and may be used for future chemical cleaning. Approximately every 3 to 5 years)	Powder

Table 2 (Continued)
Faribault Energy Park
Typical Natural Gas-Fired Power Generating Facility Chemicals

Chemical	Use	Quantity Stored Onsite	Form/Type
Sodium nitrite $NaNO_3$* (Temporarily onsite)	Chemical cleaning of HRSGs (Passivation)	9,000 pounds (Used for initial chemical cleaning and may be used for future chemical cleaning. Approximately every 3 to 5 years)	Crystals
Inhibitors, various* (Temporarily onsite)	Chemical cleaning of HRSGs (Foam control agents)	100 gallons (Used for initial chemical cleaning and may be used for future chemical cleaning. Approximately every 3 to 5 years)	Liquid
Mineral insulating oil, C-10	Transformer systems	28,000 gallons	Insulating fluid
Sulfur hexafluoride, (SF_6)	Substation electrical insulating gas	100,000 cubic feet	Insulating gas
Lubrication oil	Rotating equipment	20,000 gallons (In four 5,000 gallon tanks)	CTGs and STG bearing lubricating oil
Diesel fuel	Fuel for diesel engine driven fire pump	300 gallons	Diesel fuel
Various detergents	Combustion turbine on/off line water wash skid	200 gallons stored	Liquid
Compressed gases			
Carbon dioxide (CO_2)	CTGs and STG purge system	6,000 pounds/bottles	Compressed gas
Hydrogen (H_2)	CTGs and STG cooling system	1,800 pounds/bottles (Approximately 30 days' storage)	Compressed gas

*Chemical cleaning agents shown are those typically used. A decision on which chemicals and quantity will actually be used for will be made as the project design progresses.

Table 3

Faribault Energy Park

Estimated Water Quality: Jordon Bedrock Aquifer

Parameter	Concentration (mg/l)
Iron	18
Manganese	0.014
Sulfate	94
Chloride	1.6
Dissolved Solids	497
Hardness as $CaCO_3$	400

Source: Stanley Consultants, Inc.

Table 4
Faribault Energy Park
Existing Background Sound Pressure Levels (dBA) Measured at the Noise Measurement Locations (NML) during the Ambient Noise Survey

ID	During Daytime Hours [1]		During Nighttime Hours [2]	
	Min/Max	Audible Noise Sources	Min/Max	Audible Noise Sources
NW 650'	22.8 dBA/ 57.5 dBA	Intermittent local traffic, steady distant traffic (I-35), intermittent aircraft, birds, insects	NA/NA	
NE 250'	27.7 dBA/ 49.8 dBA	Intermittent local traffic, distant traffic, occasional aircraft, birds, insects	NA/NA	
NE 800'	36.3 dBA/ 56.4 dBA	Local traffic, occasional aircraft, birds, insects	NA/NA	

NOTES

1. Daytime hours are considered 7:00 a.m. to 10:00 p.m.
2. Nighttime hours are considered 10:00 p.m. to 7:00 a.m.

NA – data not collected.
Sources: Noise Evaluation Faribault Energy Park, Stanley Consultants, Inc. February 2003

Table 5
Faribault Energy Park
NAAQS Air Pollution Concentration Standards

Pollutant	Averaging Period	Standard	Primary NAAQS	Secondary NAAQS
Ozone	1-hour	Not to be at or above this level on more than 3 days over 3 years	125 ppb	125 ppb
	8-hour	The average of the annual 4th highest daily 8 hour maximum over a 3 year period is not to be at or above this level.	85 ppb	85 ppb
Carbon Monoxide	1-hour	Not to be at or above this level more than once per calendar year.	35.5 ppm	35.3 ppm
	8-hour	Not to be at or above this level more than once per calendar year.	9.5 ppm	9.5 ppm
Sulfur Dioxide	3-hour	Not to be at or above this level more than once per calendar year.	NA	550 ppb
	24-hour	Not to be at or above this level more than once per calendar year.	145 ppb	NA
	Annual	Not to be at or above this level.	35 ppb	NA
Nitrogen Oxide	Annual	Not to be at or above this level.	54 ppb	54 ppb
Particulate Matter (≤10 microns)	24-hour	Not to be at or above this level on more than 3 days over 3 years with daily sampling.	155 ug/m3	155 ug/m3
	Annual	The 3 year average of annual arithmetic mean concentrations at each monitor w/in an area is not to be at or above this level.	51 ug/m3	51 ug/m3
Particulate Matter (≤2.5 microns)	24-hour	The 3 year average of the annual 98th percentile for each population-orriented monitor w/in an area is not to be at or above this level.	66 ug/m3	66 ug/m3
	Annual	The 3 year average of annual arithmetic mean concentrations from single or multiple community-oriented monitors is not to be at or above this level.	15.1 ug/m3	15.1 ug/m3
Lead	Quarter	Not to be at or above this level.	1.55 ug/m3	1.55 ug/m3

Primary NAAQS: the levels of air quality that the EPA judges necessary, with an adequate margin of safety, to protect the public health.
Secondary NAAQS: the levels of air quality that the EPA judges necessary to protect the public welfare from any known or anticipated adverse effects.

Table 6
Faribault Energy Park
Historical Population

Area	1990 Census	2000 Census	% Increase
Faribault	17,985	20,818	15.8
Rice County	49,183	56,665	15.2
Twin Cities Metro	2,288,729	2,642,056	15.4
State of Minnesota	4,375,099	4,919,479	12.4

Source: Minnesota Planning Agency

Table 7
State of Minnesota Noise Standards

Noise Area Classification	Daytime (dBA)		Nighttime (dBA)	
	L_{50}	L_{10}	L_{50}	L_{10}
1 (Residential)	60	65	50	55
2 (Commercial)	65	70	65	70
3 (Industrial)	75	80	75	80

dBA = decibels, A-weighted scale; L_{10} = sound pressure level which is exceeded 10% of the time period; L_{50} = sound pressure level which is exceeded 50% of the time period.

Table 8
Faribault Energy Park
Predicted Sound Levels at Various Area Locations

Location	Sound Level (dBA)*	
	L_{50}	L_{10}
North boundary, 650' NW from power block	60.4	66.7
East boundary, 250' E from power block	67.4	72.9
North boundary, 800' NE from power block	56.5	62.8

*Predicted A-weighted sound pressure levels during normal operation of proposed Project. Does not include the barrier effect of off-site buildings, structures and intervening terrain.

Source: Noise Evaluation Faribault Energy Park. Stanley Consultants, February 2003.

Table 9
Faribault Energy Park
Criteria Pollutants
Facility Potential Emissions and Applicability to PSD

Pollutant	Potential to Emit (tons/yr)*	Threshold Quantities (tons/yr)	PSD Applicable
SO_2	132	40	Yes
NO_2	112	40	Yes
PM/PM_{10}	452	25/15	Yes
CO	696	100	Yes
VOC	459	40	Yes
Pb	0.032	0.6	No

* Provides for a worst-case potential 257 t/y PM_{10} for daily startup and shutdown of CT.

* Provides for a worst-case potential 568 t/y CO for daily startup and shutdown of CT.

* Provides for a worst-case potential 440 t/y VOCs for daily startup and shutdown of CT.

Source: PSD Air Quality Permit Application, Faribault Energy Park June 2003, Table 1-1, as revised by MPCA 2/23/04.

Table 10
Faribault Energy Park
Criteria Pollutants
Total Potential Emit while Operating on Fuel Oil

	Operating Hours (hrs/yr)	NOx (tons/yr)	CO (tons/yr)	PM/PM_{10} (tons/yr)	VOC (tons/yr)	SO_2 (tons/yr)
Combustion Turbine						
Full Capacity	2015	48.83	32.72	145.19	13.09	115.50
Start-up/Shut-down	485		288.93	238.73	296.03	
Combustion Turbine Subtotal	2500	44.83	321.65	383.92	309.12	115.50
Auxiliary Boiler	2500	2.88	1.80	1.19	0.12	2.54
Emergency Generator	500	4.02	0.92	0.12	0.12	0.07
Fire Pump Engine	500	2.22	0.48	0.16	0.18	0.03
Facility Total		57.95	324.85	385.39	309.63	118.14

Source: Correspondence from Faribault Energy Park, LLC, to EQB staff, October 29, 2003, as corrected by MPCA staff 2/23/04.
*Worst case NOx and SO2 emissions occur at 100% load during normal operation inlike PM?PM10, CO, and VOC worst case emissions which occur during startup and shutdown.

Table 11
Faribault Energy Park
Potential to Emit of Pollutants

Pollutant	Potential Emissions (Tons/year)
Nitrogen Oxides (NO_X)	112
Carbon Monoxide (CO)	696
Particulate Matter (PM_{10})	452
Volatile Organic Compounds (VOC)	459
Sulfur Dioxide (SO_2)	132
Lead	0.032
	Potential Emissions (lbs/year)
1,3-Butadiene	77
Acetaldehyde	658
Acrolein	10.5
Benzene	392.1
Dichlorobenzene	0.4
Ethylbenzene	526
Formaldehyde	11,723
Hexane	627.6
Naphthalene	173.4
PAH	206
POM	2.4
Propylene Oxide	477
Toluene	2136
Xylene (mixed isomers)	1052
Arsenic compounds	50
Beryllium	1.7
Cadmium compounds	22.2
Chromium compounds	50.2
Manganese	3,558
Mercury	5.8
Nickel compounds	21.8
Selenium compounds	114.2

Source: Site permit Application, Faribault Energy Park September 2003, Table A-6, with corrections by MPCA 2/23/04.

Table 12
Faribault Energy Park
Estimated Ground Level Concentrations

Natural Gas			
Pollutant	Emission Rate (lb/hr)	Emission Rate (g/sec)	Concentration (ug/m^3)
SO_2	4.28	0.54	0.215
NO_2	58.65	7.39	2.943
PM_{10}	18.00	2.27	0.903
Fuel Oil			
Pollutant	Emission Rate (lb/hr)	Emission Rate (g/sec)	Concentration (ug/m^3)
SO_2	64.95	8.18	3.259
NO_2	321.30	40.48	16.122
PM_{10}	34.00	4.28	1.706

Concentration at 1,073 meters downwind of stack. Assumes 170 foot stack. Maximum contribution to 24-hr average ground level concentrations.

Source: Faribault Energy park, LLC response to Department of Commerce CON application completeness comment #15

Table 13
Faribault Energy Park
Chemicals of Potential Concern

Chemical Name	Acute Inhalation Toxicity Value (ug/m3)	Chronic Non-cancer Inhalation Toxicity Value (ug/m3)	E-5 Cancer Risk Level Inhalation Toxicity Value (ug/m3)	Unit Risk Value for Carcinogens 1/(ug/m3)	Reference
NOX					
CO					
N2O					
PM					
Acetaldehyde		9.0	5	2.2E-06	HRV, IRIS
Acrolein	1.90E-01	2.0E-02			Cal EPA, IRIS
Ammonia	3.2E+03	8.0E+01			HRV
Biphenyl					
Benz(a)anthracene			0.091	1.1E-04	
Benzene	1.0E+03	6.0E+01	1.3	7.8E-06	HRV, Cal EPA, HRV
Benzo(a)pyrene			0.0091	1.1E-03	Cal EPA
Benzo(b)fluoranthene			0.091	1.1E-04	Cal EPA
Benzo(k)fluoranthene			0.091	1.1E-04	Cal EPA
1,3-Butadiene		2.00	0.0357	2.8E-04	IRIS, HRV
Chrysene			0.91	1.1E-05	Cal EPA
Dibenzo(a,h)anthracene			0.0083	1.2E-03	Cal EPA
Dichlorobenzene		2.0E+02	0.91	1.1E-05	HEAST, Cal EPA
Ethylbenzene	1.0E+04	1.0E+03			HRV, IRIS
Fluorene	♠	♠	♠	♠	
Formaldehyde	9.4E+01	3.00	0.8	1.3E-05	Cal EPA
Hexane		2.0E+03			HRV
Indeno(1,2,3-cd)pyrene			0.091	1.1E-04	Cal EPA
Methanol	25,000	4,000			HRV, Cal EPA
Naphthalene		3.00			HRV
PAH			0.0091	1.1E-03	Cal EPA
Phenol	5,800	200			HRV, Cal EPA
Propylene Oxide	3.1E+03	3.00E+01	3	3.7E-07	Cal EPA, IRIS, HRV
Styrene	2.1E+04	1,000			HRV
Toluene	3.7E+04	4.0E+02			HRV
Xylenes (total)	4.3E+04	7.0E+02			HRV, Cal EPA
Arsenic		3.0E-02	0.002	4.3E-03	Cal EPA
Barium		5.0E-01			HEAST
Beryllium		2.0E-02	0.004	2.4E-03	IRIS, HRV
Cadmium		2.0E-02	0.006	1.8E-03	Cal EPA, HRV
Chromium		8.0E-03	0.0008	1.2E-02	IRIS, HRV
Cobalt		4.0E-02			Cal EPA
Copper	1.0E+02				Cal EPA
Lead			0.833	1.2E-05	Cal EPA
Manganese		2.0E-01			HRV
Mercury	1.80	3.0E-01			Cal EPA, IRIS
Nickel	1.1E+01	5.0E-02	0.0385	4.8E-04	HRV, Cal EPA
Selenium		2.0E+01			Cal EPA
Zinc		9.0E-01			Cal EPA

Source: PSD Air Quality Permit Application, Faribault Energy Park June 2003 Table 4-2
♠ No Toxicity value
HRV – MDH Health Risk Value; IRIS – US EPA Integrated Risk Information System;
HEAST – US EPA Health Effects Assessment Summary Tables
Cal EPA – California EPA Office of Environmental Health Hazard Assessment

Table 14
Faribault Energy Park
Maximum Receptor Exposure Concentrations

Pollutant	Maximum 1 Hour Result (ug/m3)	Maximum Annual Result (ug/m3)
NOX		0.55
CO	16.01	8.84 (8 hour)
N2O		
PM	0.19	4.91 (24 hour)
Acetaldehyde	1.67E-02	8.9E-05
Acrolein	3.26E-03	1.73E-05
Ammonia	8.03	4.27E-02
Biphenyl	♣	♣
Benz(a)anthracene	5.67E-07	2.25E-07
Benzene	2.3E-02	1.33E-04
Benzo(a)pyrene	2.3E-07	8.8E-09
Benzo(b)fluoranthene	2.05E-06	8.12E-08
Benzo(k)fluoranthene	2.05E-06	8.12E-08
1,3-Butadiene	6.61E-03	3.25E-05
Chrysene	3.29E-06	1.31E-07
Dibenzo(a,h)anthracene	2.31E-06	9.16E-08
Dichlorobenzene	2.3E-04	8.8E-06
Ethylbenzene	1.34E-02	7.12E-05
Fluorene	6.18E-06	2.4E-07
Formaldehyde	3.11E-01	3.96E-03
Hexane	3.45E-01	1.32E-02
Indeno(1,2,3-cd)pyrene	2.96E-06	1.17E-07
Methanol	♣	♣
Naphthalene	1.6E-02	1.39E-04
PAH	2.11E-02	2.96E-04
Phenol		
Propylene Oxide	1.21E-02	6.45E-05
Styrene	♣	♣
Toluene	1.25E-01	9.58E-04
Xylenes (total)	8.0E-02	4.35E-04
Arsenic	5.32E-03	5.47E-05
Barium	8.43E-04	3.23E-05
Beryllium	7.05E-04	2.35E-05
Cadmium	2.56E-03	3.34E-05
Chromium	5.12E-03	4.71E-05
Cobalt	1.61E-05	6.16E-07
Copper	1.53E-03	4.57E-05
Lead	7.31E-03	9.83E-05
Manganese	3.28E-01	1.78E-03
Mercury	1.07E-03	2.55E-05
Nickel	2.48E-03	3.3E-05
Selenium	1.32E-02	1.69E-04
Zinc	5.56E-03	2.13E-04

Source: PSD Air Quality Permit Application, Faribault Energy Park June 2003 Table 4-3
♣ No emission factors

Table 15
Faribault Energy Park
Excess Lifetime Inhalation Cancer Risk

Pollutant	Excess Lifetime Cancer Risk
Acetaldehyde	1.96E-10
Acrolein	
Ammonia	
Biphenyl	♣
Benz(a)anthracene	1.96E-10
Benzene	1.04E-09
Benzo(a)pyrene	9.68E-12
Benzo(b)fluoranthene	8.93E-12
Benzo(k)fluoranthene	8.93E-12
1,3-Butadiene	9.86E-09
Chrysene	1.44E-13
Dibenzo(a,h)anthracene	1.10E-10
Dichlorobenzene	9.68E-11
Ethylbenzene	
Fluorene	♠
Formaldehyde	5.15E-08
Hexane	
Indeno(1,2,3-cd)pyrene	1.29E-11
Methanol	♣
Naphthalene	
PAH	3.26E-07
Phenol	
Propylene Oxide	2.39E-10
Styrene	♣
Toluene	
Xylenes (total)	
Arsenic	2.35E-07
Barium	
Beryllium	5.64E-08
Cadmium	6.01E-08
Chromium	5.65E-07
Cobalt	
Copper	
Lead	1.18E-09
Manganese	
Mercury	
Nickel	1.58E-08
Selenium	
Zinc	
Cumulative Excess Lifetime Cancer Risk	1.32e-06

Source: PSD Air Quality Permit Application, Faribault Energy Park June 2003 Table 4-4
♠ No toxicity value
♣ no emission factors available,

Table 16
Faribault Energy Park
Inhalation Hazard Quotients – Acute Exposures

Pollutant	Acute Hazard Quotient
Acetaldehyde	
Acrolein	1.72E-02
Ammonia	2.51E-03
Biphenyl	♣
Benz(a)anthracene	
Benzene	2.3E-05
Benzo(a)pyrene	
Benzo(b)fluoranthene	
Benzo(k)fluoranthene	
1,3-Butadiene	
Chrysene	
Dibenzo(a,h)anthracene	
Dichlorobenzene	
Ethylbenzene	1.34E-06
Fluorene	♠
Formaldehyde	3.31E-03
Hexane	
Indeno(1,2,3-cd)pyrene	
Methanol	♣
Naphthalene	
PAH	
Phenol	
Propylene Oxide	3.90E-06
Styrene	♣
Toluene	3.38E-06
Xylenes (total)	1.86E-06
Arsenic	2.8E-02
Barium	
Beryllium	
Cadmium	
Chromium	
Cobalt	
Copper	1.53E-05
Lead	
Manganese	
Mercury	5.94E-04
Nickel	2.25E-04
Selenium	
Zinc	
Cumulative Hazard Quotient	5.18E-02

Source: PSD Air Quality Permit Application, Faribault Energy Park June 2003 Table 4-5
♠ No toxicity value
♣ No emission factor

Table 17
Faribault Energy Park
Inhalation Hazard Quotients – Annual Chronic Exposures

Pollutant	Annual Chronic Hazard Quotient
Acetaldehyde	9.89E-06
Acrolein	8.65E-04
Ammonia	5.34E-04
Biphenyl	♣
Benz(a)anthracene	
Benzene	2.22E-06
Benzo(a)pyrene	
Benzo(b)fluoranthene	
Benzo(k)fluoranthene	
1,3-Butadiene	1.76E-05
Chrysene	
Dibenzo(a,h)anthracene	
Dichlorobenzene	4.40E-08
Ethylbenzene	7.12E-08
Fluorene	♠
Formaldehyde	1.32E-03
Hexane	6.60E-06
Indeno(1,2,3-cd)pyrene	
Methanol	♣
Naphthalene	4.63E-05
PAH	
Phenol	
Propylene Oxide	2.15E-06
Styrene	♣
Toluene	2.40E-06
Xylenes (total)	6.21E-07
Arsenic	1.82E-03
Barium	6.46E-05
Beryllium	1.18E-03
Cadmium	1.67E-03
Chromium	5.89E-03
Cobalt	1.54E-05
Copper	
Lead	
Manganese	8.90E-03
Mercury	8.50E-05
Nickel	6.60E-04
Selenium	8.54E-06
Zinc	2.37E-04
Cumulative Hazard Quotient	2.33E-02

Source: PSD Air Quality Permit Application, Faribault Energy Park June 2003 Table 4-6
♣ No emission factors available
♠ No toxicity value

Table 18
Faribault Energy Park
Criteria Pollutant Modeling Results

Pollutant	Maximum Modeled Concentration Acute Receptor (ug/m3)	Maximum Modeled Concentration Chronic Receptor (ug/m3)	Minnesota Ambient Air Quality Standard (ug/m3)	Ratio of Modeled To AAQS Acute	Ratio of Modeled To AAQS Chronic
CO – 8 Hour	8.84		10,000	0.00085	
CO - 1 Hour	16.01		35,000	0.00046	
NO2 – Annual		0.55	100		0.0055
SO2 – Annual		0.39	60		0.0049
SO2 – 24 Hour	3.51		365	0.0096	
SO2 – 3 Hour	17.22		1,300	0.013	
SO2 – 1 Hour			1,300		
PM10 – Annual		0.19	50		0.0038
PM10 – 24 Hour	4.91		150	0.033	
Pb – 1 Hour	7.3E-03	9.8E-05	1.5	0.0049	0.000065

Source: PSD Air Quality Permit Application, Faribault Energy Park June 2003 Table 4-7, with MPCA correction 2/24/04.

Table 19
AERA Risk Calculations

Chemical Name	Screening Inhalation Hazard Quotients & Cancer Risks for Individual Substances			
[redacted]	Acute ISHQ	Subchronic Noncancer ISHQ	Chronic Noncancer ISHQ	ISIR (ca)
Ammonia	3.2e-03	1.0e-03	5.1-04	0
Benz(a)anthracene	0	0	0	2.4e-011
Benzene	2.8e-05	0	1.0e-05	2.4e-09
Benzo(k)fluoranthene	0	0	0	8.6e-12
Benzo(b)fluoranthene	0	0	0	8.6e-12
1,3-Butadiene	0	0	2.8e-05	1.6e-08
Chrysene	0	0	0	1.4e-12
Dibenzo(a,h)anthracene	0	0	0	1.1e-10
Ethylbenzene	8.8e-09	0	3.4e-09	0
Formaldehyde	2.0e-03	0	9.1e-04	3.5e-08
Indeno(1,2,3-cd)pyrene	0	0	0	1.2e-11
Naphthalene	9.5e-05	0	2.0e-05	0
Nitrogen oxide	5.4e-02	0	0	0
PAH	0	0	0	1.9e-08
POM	0	0	0	1.3e-07
Toluene	2.3e-07	0	8.2e-07	0
Xylenes (total)	3.3e-09	0	5.6e-08	0
Arsenic	3.3e-02	0	2.3e-03	2.9e-07
Beryllium	0	0	1.2e-03	5.5e-08
Cadmium	0	0	1.9e-03	7.0e-08
Chromium	0	1.4e-04	6.1e-04	7.3e-07
Copper	1.1e-05	0	0	0
Lead	0	0	0	1.4e-09
Manganese	0	0	1.4e-02	0
Mercury	6.5e-04	1.8e-04	8.7e-05	0
Nickel	2.6e-04	0	7.6e-04	9.9e-09
Selenium	0	0	9.9e-06	0
TOTAL	9.3e-02	1.4e-03	2.2e-02	1.4e-06

Source: Air Emission Risk Assessment, Faribault Energy Park, LLC. February 2004; revised 2/27/04.
Values based on 8760 hrs/yr fuel oil, ultra low sulfur

Table 19 (continued)
AERA Risk Calculations

Chemical Name	Chronic Screening Non-Inhalation Pathway Hazard Quotients & Cancer Risks for Individual Substances			
	Farmer Non-cancer	Farmer Cancer	Resident Non-cancer	Resident Cancer
Ammonia	0	0	0	0
Benz(a)anthracene	0	2.4e-09	0	6.3e-11
Benzene	0	0	0	0
Benzo(k)fluoranthene	0	5.2e-09	0	9.6e-12
Benzo(b)fluoranthene	0	2.6e-09	0	1.3e-11
1,3-Butadiene	0	0	0	0
Chrysene	0	2.8e-10	0	4.4e-12
Dibenzo(a,h)anthracene	0	4.2e-07	0	7.3e-11
Ethylbenzene	0	0	0	0
Formaldehyde	0	0	0	0
Indeno(1,2,3-cd)pyrene	0	7.5e-07	0	4.5e-11
Naphthalene	0	0	0	0
Nitrogen oxide	0	0	0	0
PAH	0	5.8e-06	0	0
POM	0	3.8e-05	0	0
Toluene	0	0	0	0
Xylenes (total)	0	0	0	0
Arsenic	0	0	0	0
Beryllium	0	1.6e-07	0	4.3e-08
Cadmium	0	3.5e-07	0	6.6e-08
Chromium	0	4.1e-06	0	0
Copper	0	0	0	0
Lead	0	2.6e-09	0	0
Manganese	0	0	0	0
Mercury	8.7e-05	0	0	0
Nickel	0	0	0	0
Selenium	0	0	0	0
TOTAL	8.7e-05	4.9e-05	0	1.87e-07

Source: Air Emission Risk Assessment, Faribault Energy Park, LLC. February 2004; revised 2/27/04
Values based on 8760 hrs/yr fuel oil, ultra low sulfur

Table 19 (continued)
AERA Risk Calculations

Chemical Name	Chronic Screening Total Hazard Quotients & Cancer Risks (Inhalation + Non-inhalation) for Individual Substances			
[redacted]	Farmer Non-cancer	Farmer Cancer	Resident Noncancer	Resident Cancer
Ammonia	5.1e-04	0	5.1-04	0
Benz(a)anthracene	0	2.4e-09	0	8.6e-11
Benzene	1.0e-05	2.4e-09	1.0e-05	2.4e-09
Benzo(a)pyrene	0	3.9e-08	0	1.5e-10
Benzo(k)fluoranthene	0	5.2e-09	0	1.8e-11
Benzo(b)fluoranthene	0	2.6e-09	0	2.1e-11
1,3-Butadiene	2.8e-05	1.6e-08	2.8e-05	1.6e-08
Chrysene	0	2.8e-10	0	5.8e-12
Dibenzo(a,h)anthracene	0	4.2e-07	0	1.8e-10
Ethylbenzene	3.4e-09	0	3.4e-09	0
Formaldehyde	9.1e-04	3.5e-08	9.1e-03	3.5e-08
Indeno(1,2,3-cd)pyrene	0	7.5e-07	0	5.7e-11
Naphthalene	2.0e-05	0	2.0e-05	0
Nitrogen oxide	0	0	0	0
PAH	0	5.8e-06	0	1.9e-08
POM	0	3.8e-05	0	1.3e-07
Toluene	8.2e-07	0	8.2e-07	0
Xylenes (total)	5.6e-08	0	5.6e-08	0
Arsenic	2.3e-03	2.9e-07	2.3e-03	2.9.4e-07
Beryllium	1.2e-03	2.1e-07	1.2e-03	9.9e-08
Cadmium	1.9e-03	7.7e-07	1.9e-03	2.0e-07
Chromium	6.1e-04	4.9e-06	6.1e-04	7.3e-07
Copper	0	0	0	0
Lead	0	4.0e-09	0	1.4e-09
Manganese	1.4e-02	0	1.4e-02	0
Mercury	1.7e-04	0	8.7e-05	0
Nickel	7.6e-04	9.9e-09	7.6e-04	9.9e-09
Selenium	9.9e-06	0	9.9e-06	0
TOTAL	2.2e-02	5.1e-05	2.2e-02	1.5e-06

Source: Air Emission Risk Assessment, Faribault Energy Park, LLC. February 2004; revised 2/27/04
Values based on 8760 hrs/yr fuel oil, ultra low sulfur

Table 20
Faribault Energy Park
Quarterly Peak Employment By Segment During Construction*

Period	Structural/ Civil Craft	Elec.	Mech.	Misc. Craft	Const. Mngt. and Support	Indirect Const. Labor	Oper. Staff	Start Up Labor	Total
Pre-Mobilization	0	0	0	0	6	0	0	0	6
2004 3rd Quarter	125	5	0	0	10	2	0	0	142
2004 4th Quarter	175	5	25	0	10	2	0	0	217
2005 1st Quarter	125	20	60	0	10	2	0	0	217
2005 2nd Quarter	50	20	75	0	10	2	0	0	157
2005 3rd Quarter	10	20	75	0	10	2	0	0	117
2005 4th Quarter	10	25	70	0	10	2	0	4	121
2006 1st Quarter	10	30	10	0	10	2	2	10	74
2006 2nd Quarter	10	15	5	0	10	2	4	10	56
Peak Employment	175	30	75	0	10	2	4	10	

Source: Dahlen, Berg & Co. 200 S. Sixth Street, Suite 300, Minneapolis, MN

* Based on Peak Daily Craft Count calculated on the basis of five days per week, eight hours/day production, for a summer 2006 commercial operation date of facility.

Table 21
Faribault Energy Park
Total Estimated Salary by Construction Crew ($2002)

Crew	Total
Site Work	$1.5 MM
Concrete Work	$3.0 MM
Arch & Metals	$0.75 MM
Piping	$2.0 MM
BOP/Mech. Equipment	$0.35 MM
Turbine Erection	$0.6 MM
HRSG Erection	$1.1 MM
Electrical/I&C	$1.9 MM
Insulation	$0.25 MM
Painting	$0.1 MM
Construction Management	$1.5 MM
Indirect Labor	$0.3 MM
Startup Labor	$0.2 MM
Total	$13.55 MM

Source: Dahlen, Berg & Co. 200 S. Sixth Street, Suite 300, Minneapolis, MN

Table 22
Faribault Energy Park
Estimated Operating Staff by Shift

Personnel	Day Shift (1)	2nd	3rd	Total
Plant/Site Manager	1	0	0	1
Plant Engineers	1	0	0	1
Clerk	1	0	0	1
Operators/Sup	2	2	0	4
Mechanics	2	0	0	2
Electricians	1	0	0	1
Laborers	0	0	0	0
Total	11	2	0	13

Source: Dahlen, Berg & Co. 200 S. Sixth Street, Suite 300, Minneapolis, MN

Table 23
Faribault Energy Park
Cumulative Economic Benefit (Statewide)

	Million ($2002)
Construction	
Wages	$13.5 MM
Capital Investment	$100.0 MM
Indirect	$133.3 MM
Subtotal Construction	
Operation (20 years) NPV	
Wages	$2.0 MM
O&M	$8.0 MM
Indirect	$30 MM
Subtotal Operation	$40 MM
Cumulative Impact	173.5 MM

Source: Dahlen, Berg & Co. 200 S. Sixth Street, Suite 300, Minneapolis, MN

Table 24
Faribault Energy Park
Preliminary Permitting Requirements

Agency	Permit/Approval	Regulated Activity
FEDERAL		
COE	Section 10/ Section 404 Permits	Construction activities in navigable water of the US.
EPA	Risk Management Plan	Potential accidental releases of hazardous chemicals that are used or stored onsite in greater than threshold quantities (Title III of CAAA).
DOE	Alternate Fuels Capability Certification	Baseload facility using natural gas.
FAA	Notice of Proposed Construction or Alteration	Construction of an object which has the potential to affect navigable airspace (height in excess of 200' or within 20,000' of an airport).
FERC	Exempt Wholesale Generator Status	Selling electric energy at wholesale to a utility or other generator.
STATE		
MPCA	Air Pollution Control Construction Permit	Construction, installation or alteration of an air contamination source.
MPCA	Title IV Acid Rain Operating Permit	Title IV of CAAA, applicable to fossil fuel fired units > 25 MW.
MPCA	Title V Operating Permit	Title V of CAAA or Federally Enforceable State Operating Permit for significant air emission sources.
MPCA	Hazardous Waste SQG Registration	Generation of small quantities of hazardous waste.
MPCA	Section 401 Water Quality Certification	State approval for federal action impacting state waters.
MPCA	NPDES Stormwater Construction Permit	Discharge of storm waters during construction of facility.
MPCA	NPDES Stormwater Operation Permit	Discharge of storm waters during operation of facility.
State Historic Preservation Office	Archeological and Historical Review	Activities that could potentially affect archeological or historical resources.
DNR	Groundwater Appropriation Permit	Pump groundwater to the plant
DNR	Public Waters Permit	Projects constructed below the ordinary high water level (OHWL)
LOCAL		
City/County/Tsp	Site Plan Approval	Establishment of power generation facilities as a permitted use.
City/County/Twp	Building Permit/Architectural Review/Fire Safety Approval	Construction of facility.
City/County/Tsp	Soil and Sedimentation Control Permit	Control of soil erosion.
City/County/Tsp	Individual Septic Treatment System	Design, construction and discharge of sanitary wastewater.
City/County/Tsp	Certificate of Occupancy	License to operate facility

FIGURES

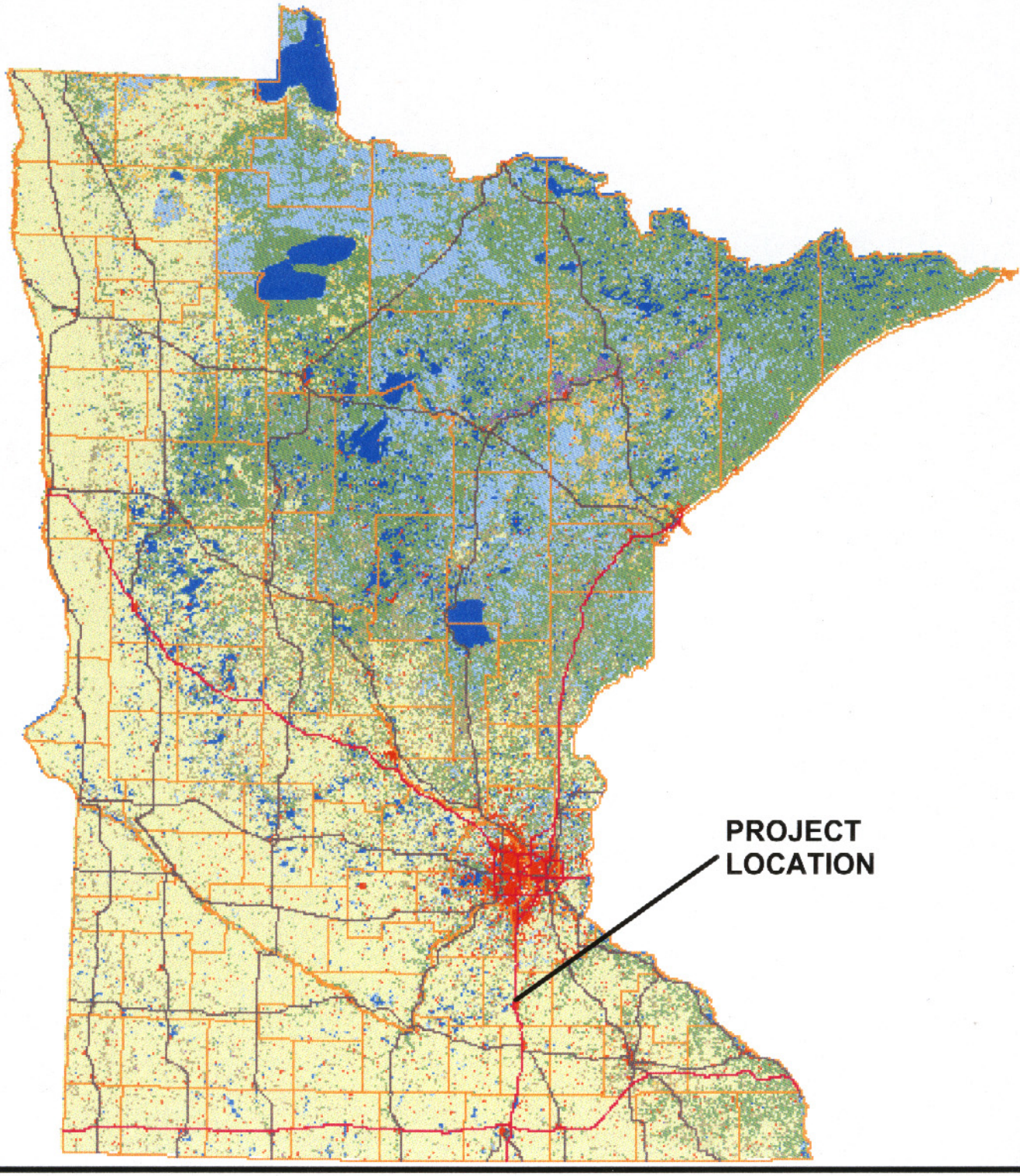

Figure 1 Site Location Map

Faribault Energy Park. LLC
Environmental Impact Statement
Docket #02-48-PPS-FEP

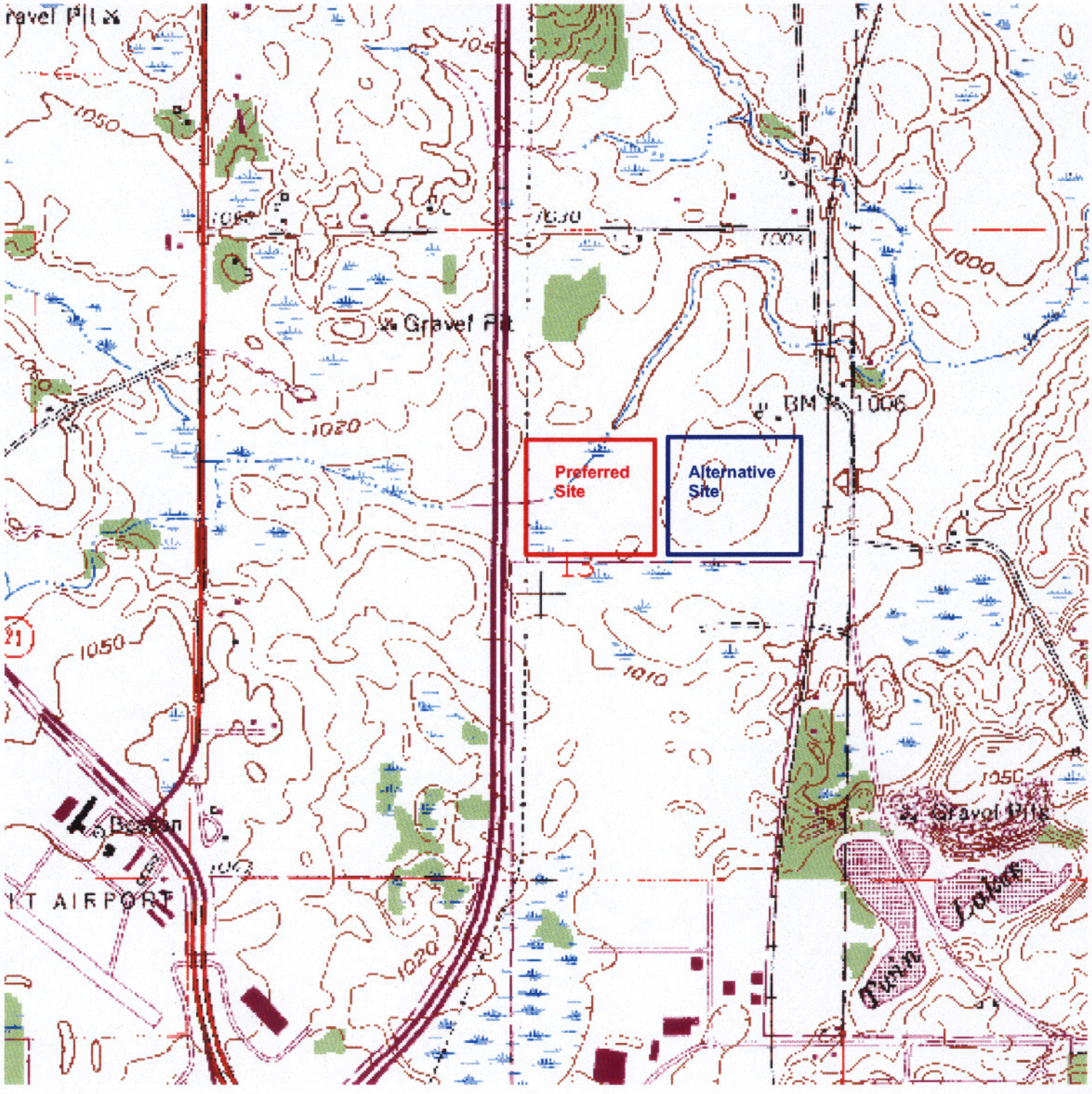

Figure 2 Site Map: USGS

Faribault Energy Park. LLC
Environmental Impact Statement
Docket #02-48-PPS-FEP

Scale 1:18719

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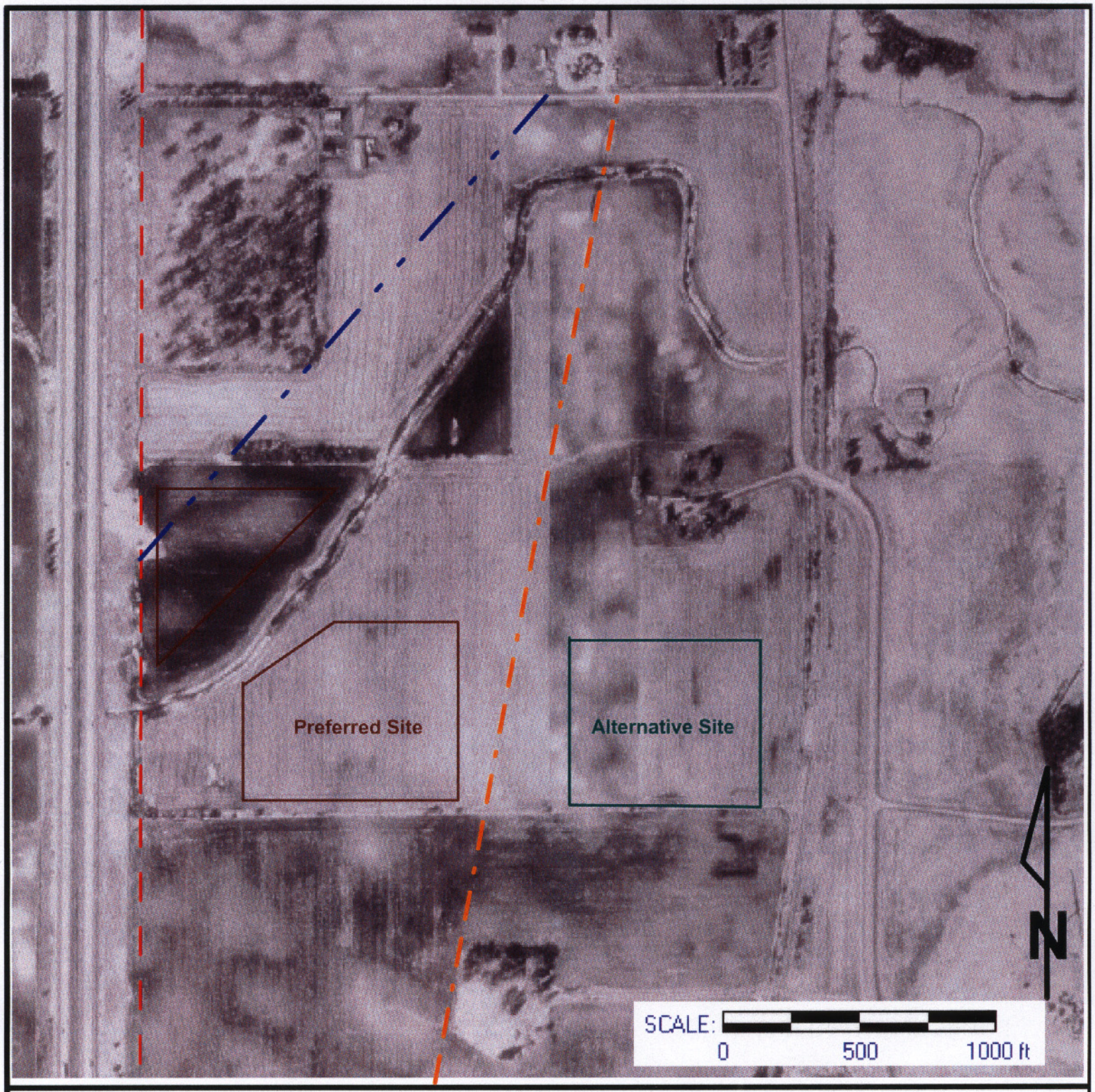
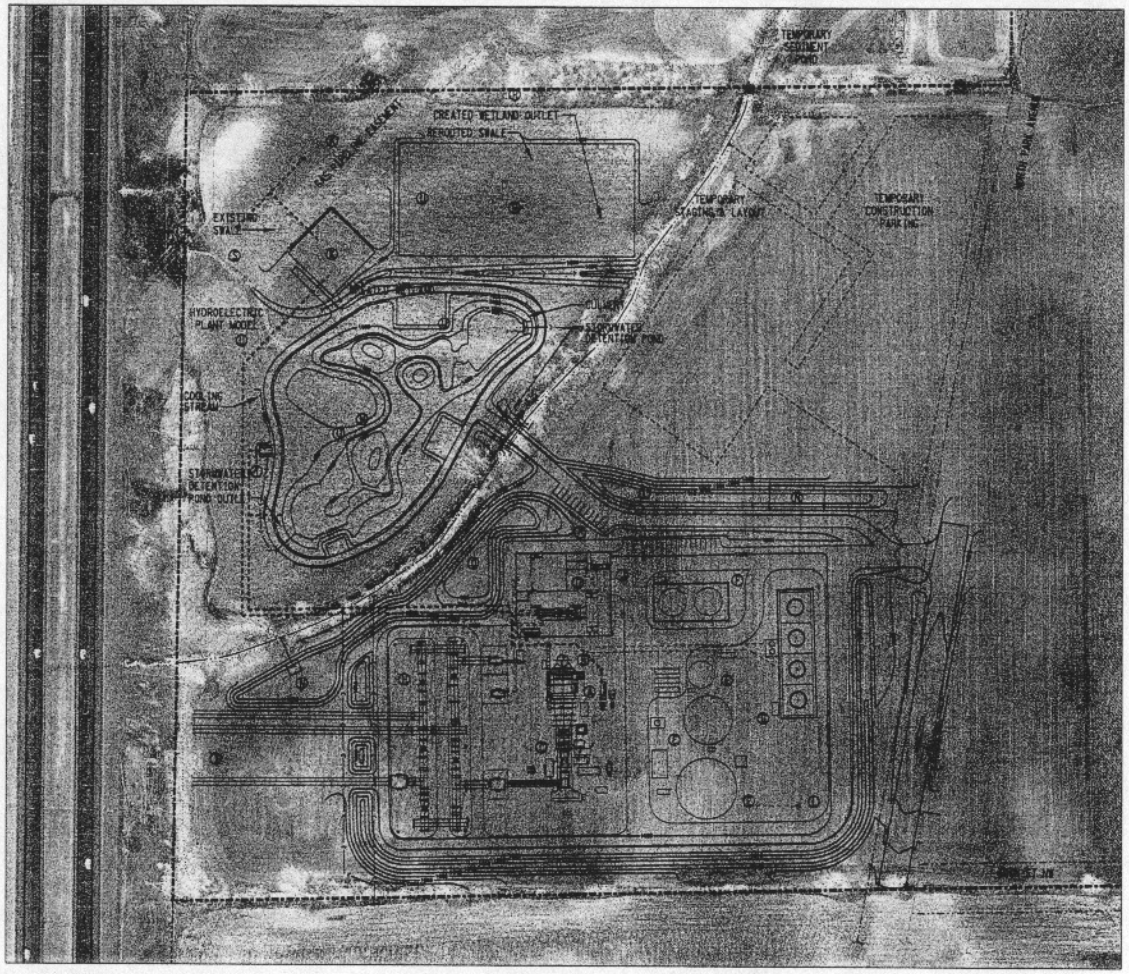


Figure 3 Site Map: Aerial Photograph Preferred & Alternative Sites

Faribault Energy Park. LLC
Environmental Impact Statement
Docket #02-48-PPS-FEP

Williams Pipeline Company Easement
Northern Natural Gas Easement
Xcel Energy Transmission Line Easement

Stanley Consultants INC.



CONCEPT PLAN

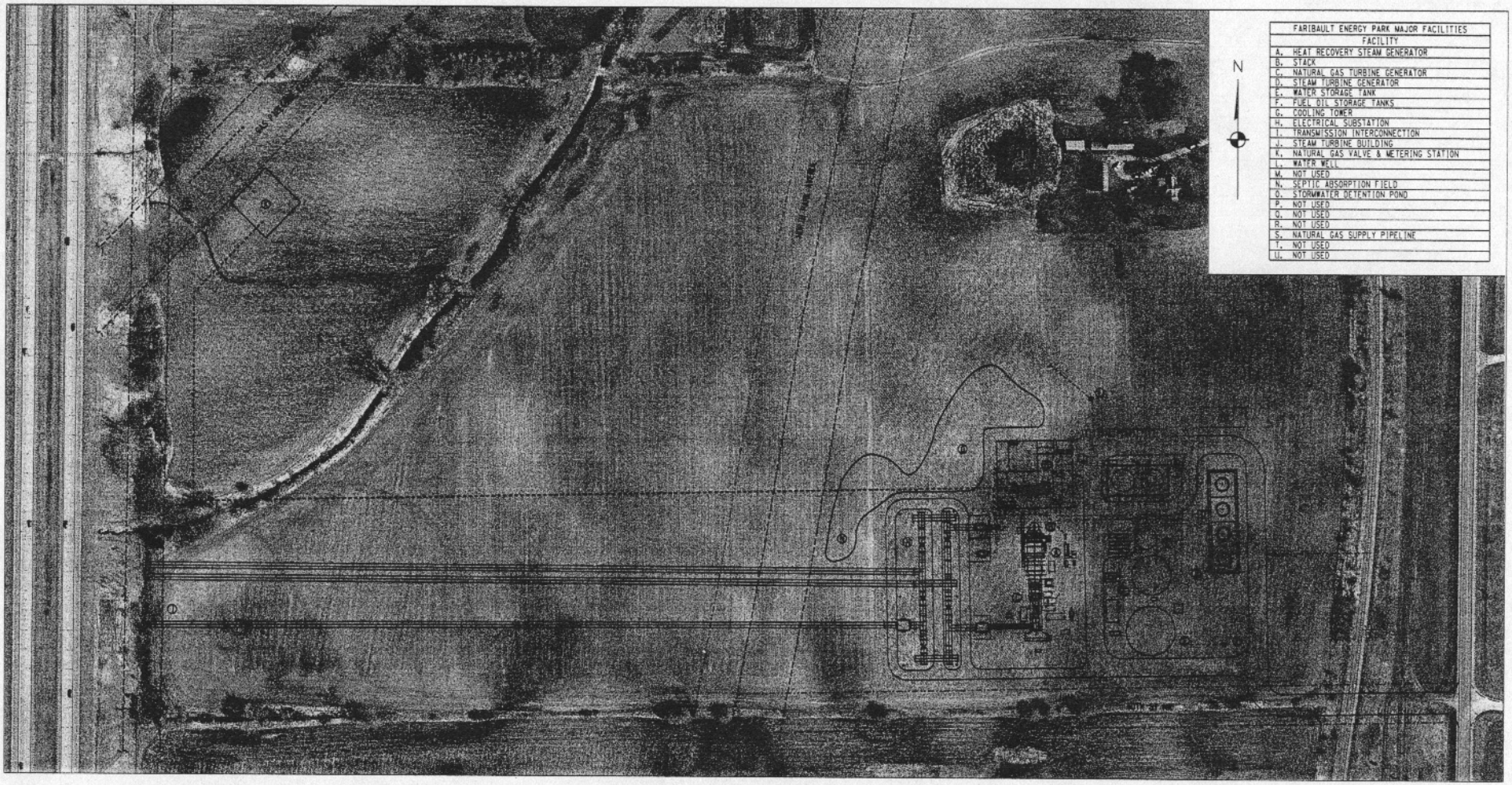
FARIBAULT ENERGY PARK MAJOR FACILITIES
FACILITY
A. HEAT RECOVERY STEAM GENERATOR
B. STACK
C. NATURAL GAS TURBINE GENERATOR
D. STEAM TURBINE GENERATOR
E. WATER STORAGE TANK
F. FUEL OIL STORAGE TANKS
G. COOLING TOWER
H. ELECTRICAL SUBSTATION
I. TRANSMISSION INTERCONNECTION
J. STEAM TURBINE BUILDING
K. NATURAL GAS VALVE & METERING STATION
L. WATER WELL
M. CREATED WETLAND
N. SEPTIC ABSORPTION FIELD
O. STORMWATER DETENTION POND
P. PUBLIC PARKING & INTERPRETIVE DISPLAY AREA
Q. NOT USED
R. FUTURE GREENHOUSE
S. NATURAL GAS SUPPLY PIPELINE
T. PLANT EFFLUENT PIPELINE
U. ENERGY EDUCATION CENTER (HYDRO, SOLOR, WIND, OTHER)

N

Figure 4 Site Map: Conceptual Plan

Faribault Energy Park, LLC
Environmental Impact Statement
Docket #02-48-PPS-FEP

Stanley Consultants INC.



CONCEPT PLAN

Figure 5 Site Map: Conceptual Plan Alternative Site

Faribault Energy Park, LLC
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Docket #02-48-PPS-FEP

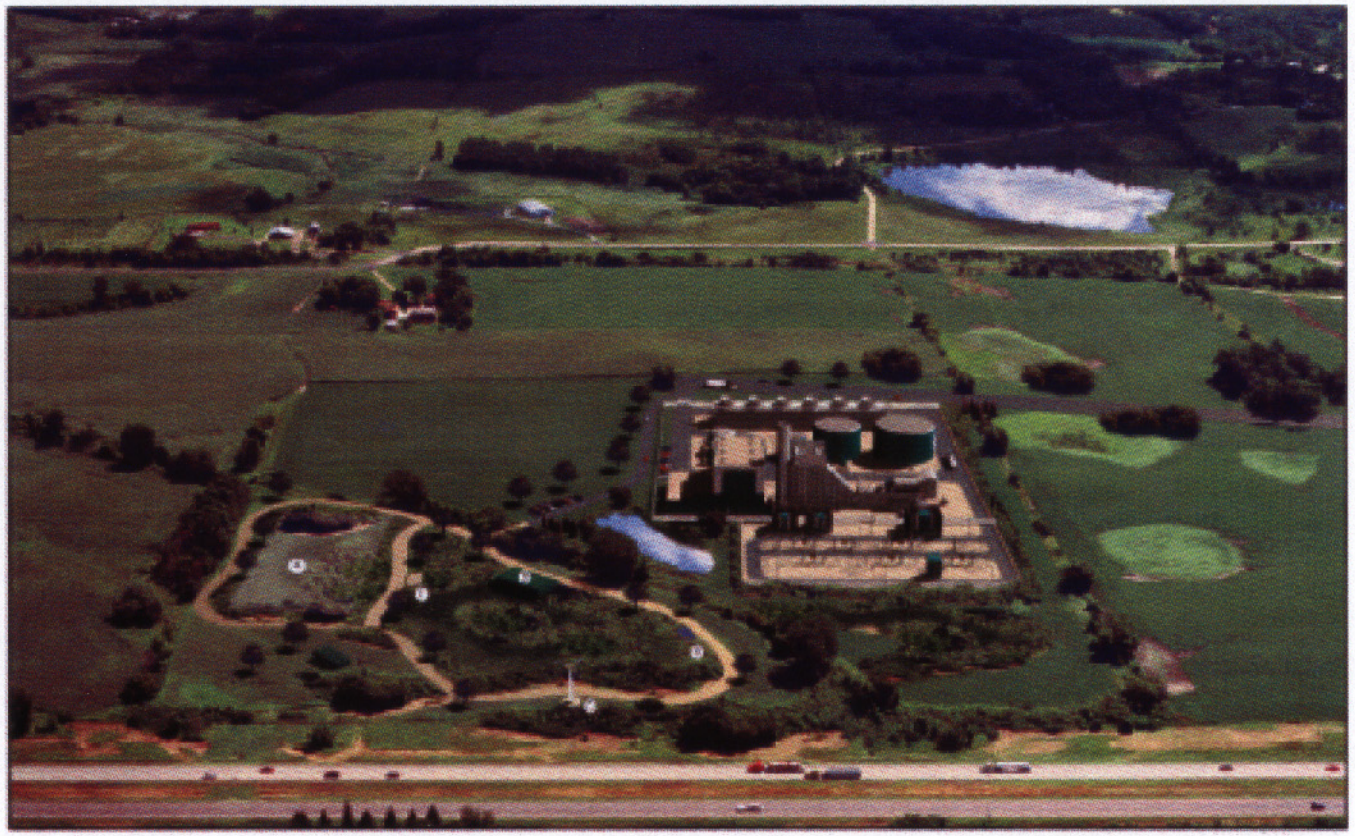
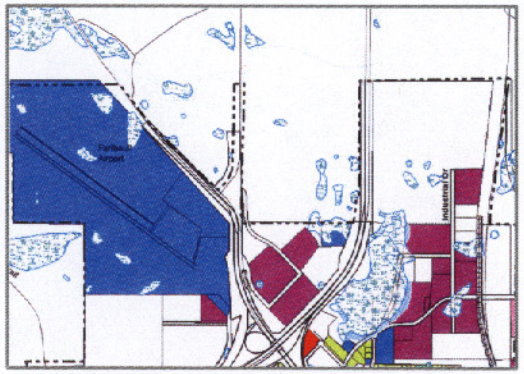


Figure 6 Site Map: Conceptual Plan Rendering - Viewed from the west

Faribault Energy Park, LLC
Environmental Impact Statement
Docket #02-48-PPS-FEP

Current Land Use

- Single Family Residential
- General Commercial
- Industrial
- Public - Semi Public

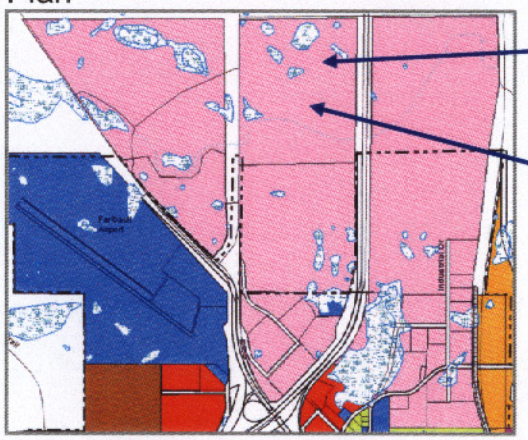


Comprehensive Plan Objectives

- Maintain and expand job base
- Continue to provide well-designed and functional industrial parks
- Provide adequate land supply in industrial parks, but limit options for new industrial development in other locations
- Orient industrial traffic towards highways

Proposed Land Use Plan

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Highway Commercial
- Industrial Park
- Public - Semi Public



Key Changes

- Create new "Industrial Park" category (clarify differences between newer and older industrial areas)
- Provide additional land for industrial growth

Figure 7 Illustration: Faribault Comprehensive Plan

Faribault Energy Park, LLC
Environmental Impact Statement
Docket #02-48-PPS-FEP

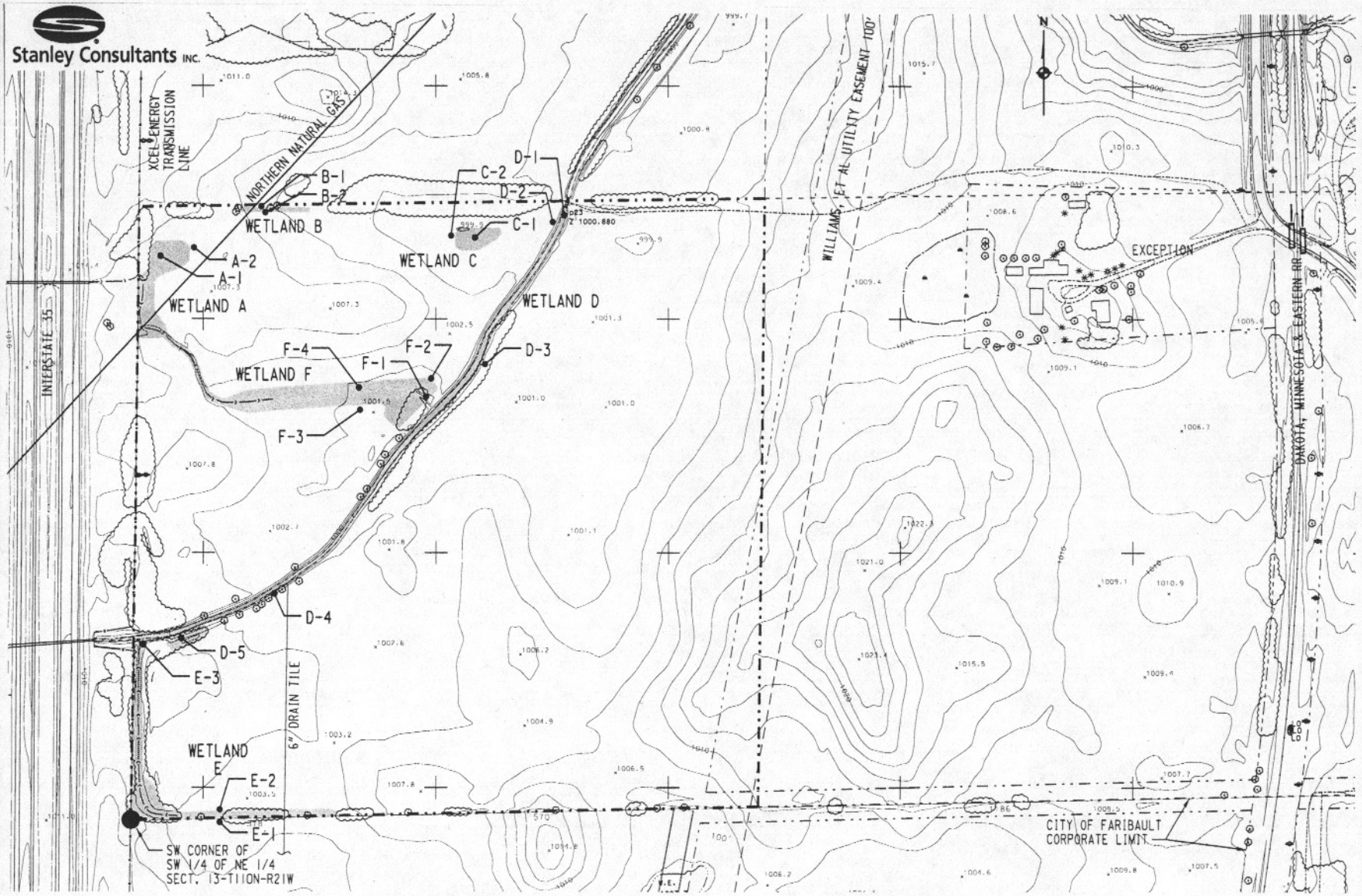


Figure 8 Site Map: Wetland Delineation

Faribault Energy Park, LLC
Environmental Impact Statement
Docket #02-48-PPS-FEP

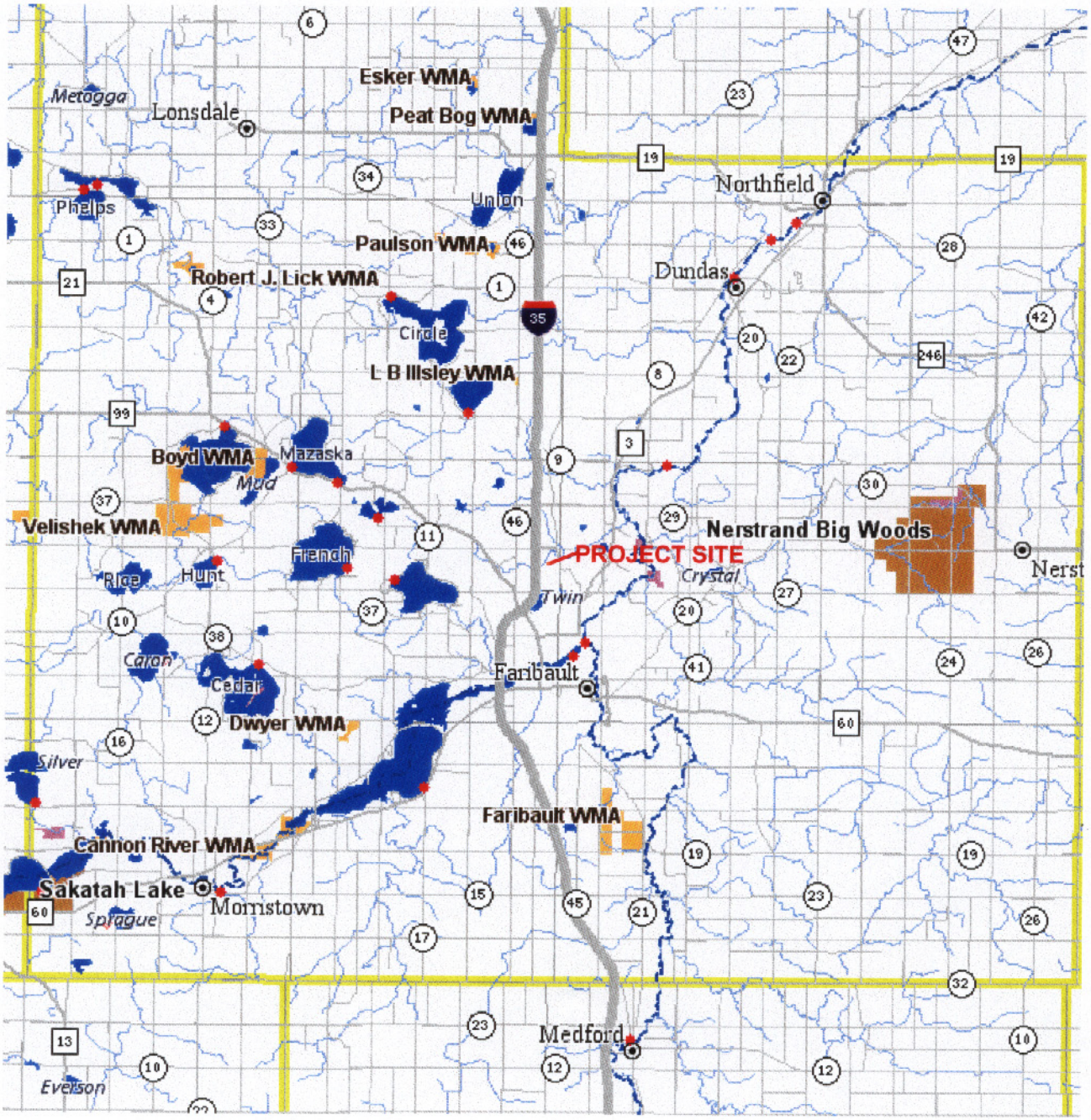


Figure 9 Site Map: Natural Areas

Faribault Energy Park, LLC
Environmental Impact Statement
Docket 02-48-PPS-FEP

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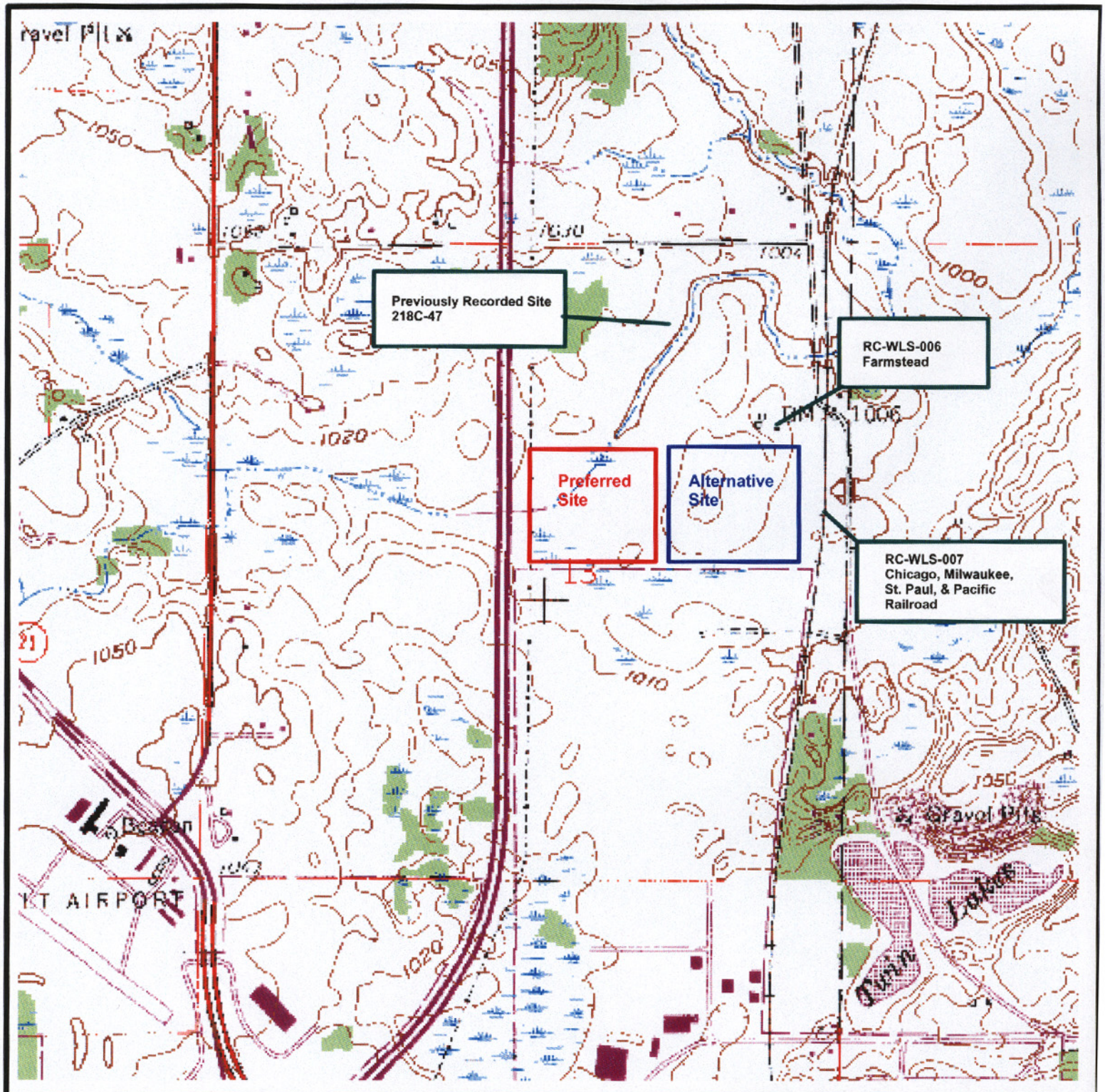

Figure 10 Site Map: Cultural Resource Survey

Faribault Energy Park. LLC
Environmental Impact Statement
Docket #02-48-PPS-FEP

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Figure 11 Site Map: Noise Model Isopleth

Faribault Energy Park, LLC
Environmental Imapct Statement
Docket #02-48-PPS-FEP

APPENDIX A – SCOPING DECISION

STATE OF MINNESOTA

ENVIRONMENTAL QUALITY BOARD

In the Matter of Faribault Energy Park, LLC's application for a site permit for a large electric power generating plant located in Faribault, Minnesota.

ENVIRONMENTAL IMPACT STATEMENT - SCOPING DECISION
Docket #02-48-PPS-FEP
October 29, 2003

The above-entitled matter came before the Chair of the Minnesota Environmental Quality Board (MEQB) for a decision on the scope of the Environmental Impact Statement (EIS) to be prepared on the proposed Faribault Energy Park project. The EQB held a public meeting on October 15, 2003, to discuss the project with the public and to solicit input into the scope of the EIS to be prepared. The public was given until October 24 to submit written comments regarding the scope of the EIS. Having reviewed the comments submitted and consulted with EQB staff, I hereby make the following Scoping Order. The draft EIS shall address the following.

ALTERNATIVE SITES

The draft EIS shall address the following two sites:

The preferred site is located in the southwest ¼ of the northeast ¼ of Section 13, Township 110 North, Range 21 West, Rice County, Minnesota.

The alternative site is located in the southeast ¼ of the northeast ¼ of Section 13, Township 110 North, Range 21 West, Rice County, Minnesota.

IMPACTS TO BE EVALUATED

The draft EIS on the Faribault Energy Park project will address the following matters:

A. GENERAL

A.1. Purpose and Need

A.2. Regulatory requirements

B. PROPOSED ACTION

B.1. Typical operation cycle of the plant (hours per day, days per year) and conditions determining fuel type usage

B.2. Construction plan: time needed to construct the plant and the anticipated time frame for plant operations based on the plant's design

B.3. Selection of emission controls, Best Available Control Technology (BEST) analysis, and effects on overall plant operations

B.4. Combustion turbine and cooling technologies

C. SITE SELECTION

C.1. Property acquisition for the land where the plant may be sited

C.2. The process used to identify the sites

C.3. Municipal services and corresponding infrastructure needs (e.g., storm water system, water lines, sanitary waste treatment capacity, spray irrigation for wastewater disposal, roads, pipeline routing and transmission interconnection)

C.4. The plant siting process, including the agency responsible for site selection

C.5 Siting considerations contained in Minnesota Rules part 4400.3150

D. AIR POLLUTION

D.1. The type, amount, and impact of fugitive dust generated during construction and operation

D.2. Fugitive dust management practices during construction

D.3. The quantity and quality (i.e., chemical and physical characteristics) of potential criteria and hazardous air pollutant emissions from the plant, including a discussion on carbon dioxide and ammonia. A discussion on emissions relative to fuel type (i.e., natural gas versus fuel oil)

D.4. The potential impact from the release of moisture to the atmosphere related to fogging and icing along Interstate 35

E. BIOLOGICAL RESOURCES

E.1. Threatened and endangered species and species of concern

E.2. The potential for disruption of critical habitat

E.3. Discharges to the streams and rivers and the effect on wildlife and aquatic life

E.4. The location of utility lines and potential impacts on wetlands

K. SOCIOECONOMICS

K.1. Housing or lodging requirements during construction and operation

K.2 Construction, operation, and closure effects upon the local economy (jobs, property taxes)

L. TRANSPORTATION

L.1. The transportation of materials to the plant, including routes, frequency, mode of transportation, and time of day or night

L.2. The accident potential associated with truck, train, and other vehicular traffic during construction and operation

M. VISUAL IMPACTS AND AESTHETICS

M.1. Line-of-sight issues and visual impact of the power plant's stack, and related structures

M.2. Brightness of operations and security lights, day and night time visual impacts

M.3. Visual impacts of emission plumes and fog

N. WASTE MANAGEMENT AND DISPOSAL

N.1. Constituent characteristics and handling (treatment/storage) of waste water

N.2. Types, quantities and management practices of solid and hazardous waste generation

N.3. Storm water runoff management practices (collection, storage, and treatment)

O. WATER

O.1. Water withdrawal needs and availability from groundwater sources

O.2. The potential effect of groundwater withdrawal on neighboring wells

O.3. The impacts if the plant were sited in a floodplain

O.4. Use of municipal water

O.5. Wastewater management and discharge, including the quantity and quality of effluent (i.e., chemical and physical characteristics), point of release, and the effect of discharges on a municipal wastewater treatment plant or agricultural land

F. CULTURAL RESOURCES

F.1. The impacts of proposed plant site and associated facilities on historic and archaeological resources

G. GEOLOGY AND SOILS

G.1. The potential for soil erosion at the plant site

G.2. The potential for loss of prime farmland

H. HEALTH AND SAFETY

H.1. The effects of noise and pollution on human health, including information contained in the facilities Air Emission Risk Analysis (AERA) document

H.2. Potential accident scenarios concerning the use of natural gas

H.3. The current regulatory status of health risks related to electric and magnetic fields

H.4. The use, location, size, and potential effects of high voltage transmission lines and high pressure natural gas pipelines for the proposed project

H.5. Emergency preparedness plans for the plant

I. LAND

I.1. Zoning requirements and compatibility with local land use planning

I.2. The need for setbacks from highways and residential areas

I.3. The amount of prime farmland that the power plant would use

I.4. The effects on existing land uses

I.5. The impacts of site decommissioning, closure, or abandonment

J. NOISE

J.1 Noise associated with construction of the plant

J.2. Noise associated with operation of the plant

J.3 Noise heard by the public

P. OTHER

P.1. Creation and management of artificial wetlands

ISSUES OUTSIDE THE SCOPE OF THE EIS

The EQB will not, as part of the draft EIS, consider whether a different size or different type plant should be built. Nor will the EQB consider the no-build option.

IDENTIFICATION OF PERMITS

The draft EIS will include a list of permits that will be required for the applicant's to construct this project.

SCHEDULE

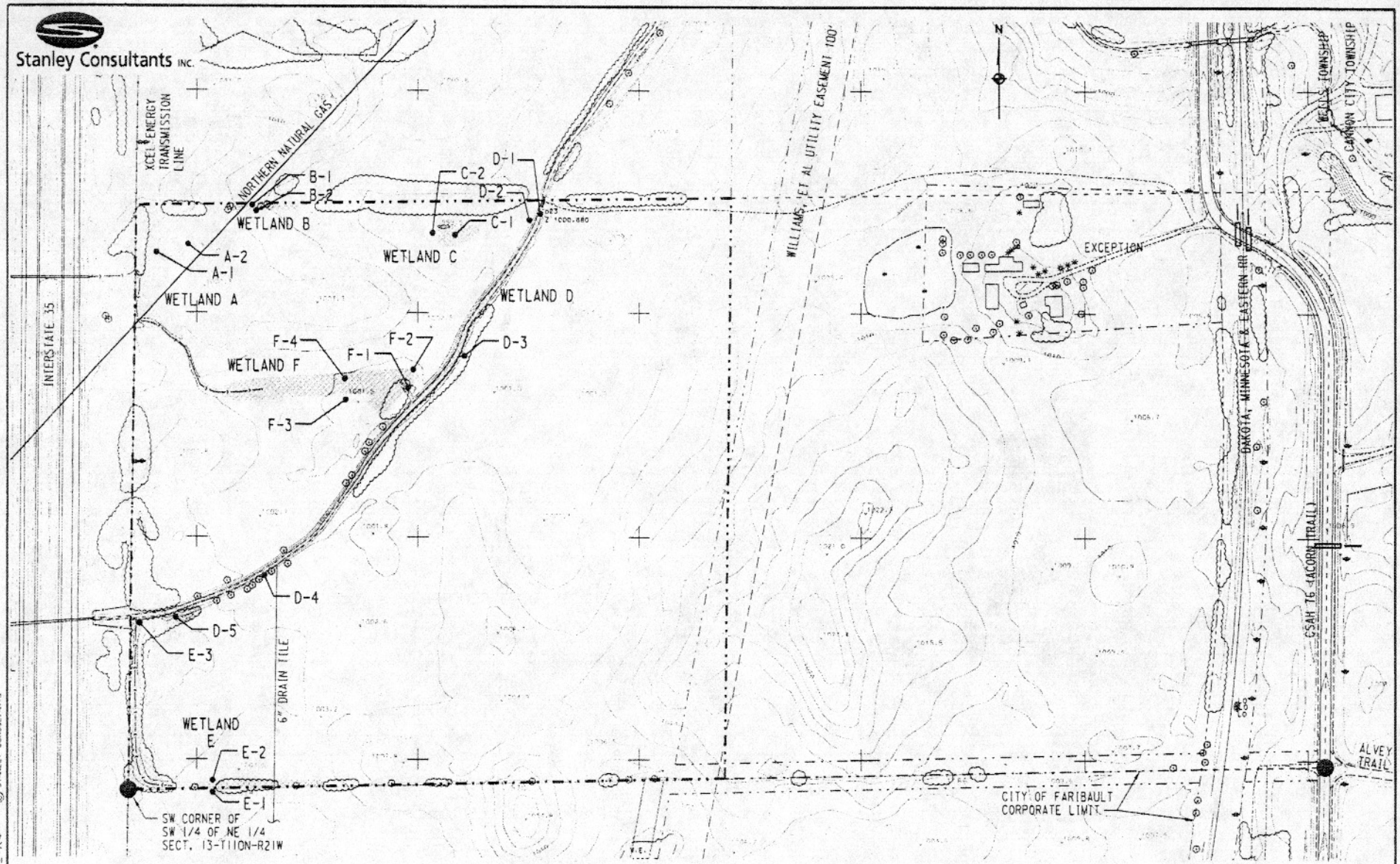
A draft EIS will be completed by February 15, 2004.

Signed this 31 day of October, 2003

STATE OF MINNESOTA
ENVIRONMENTAL QUALITY BOARD

Robert A. Schroeder,
Chair

APPENDIX B – SITE PHOTOGRAPHS



Delineated Wetland Locations
Figure 4-1

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CADD 82-R4
© STANLEY CONSULTANTS

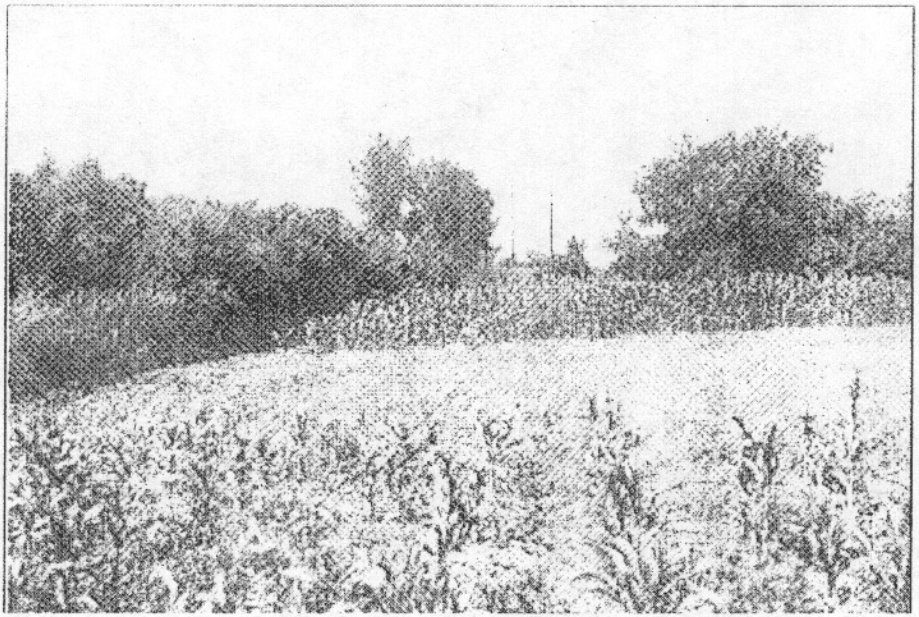

Photo 1: Looking north at Wetland A. I-35 right-of-way to left.

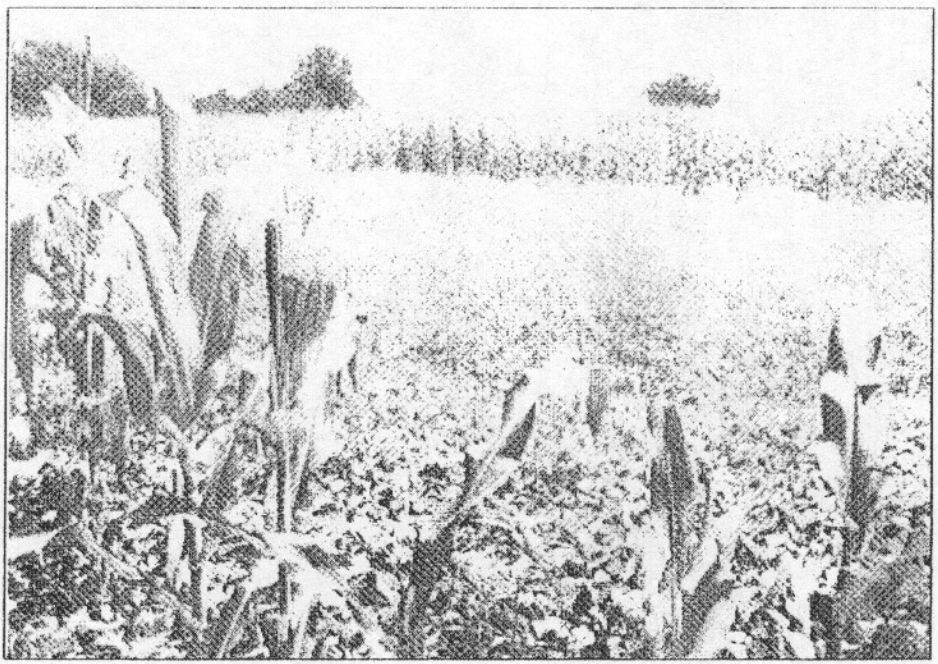

Photo 2: Looking east at Wetland A and location of Data Point Nos. A-1 and A-2.

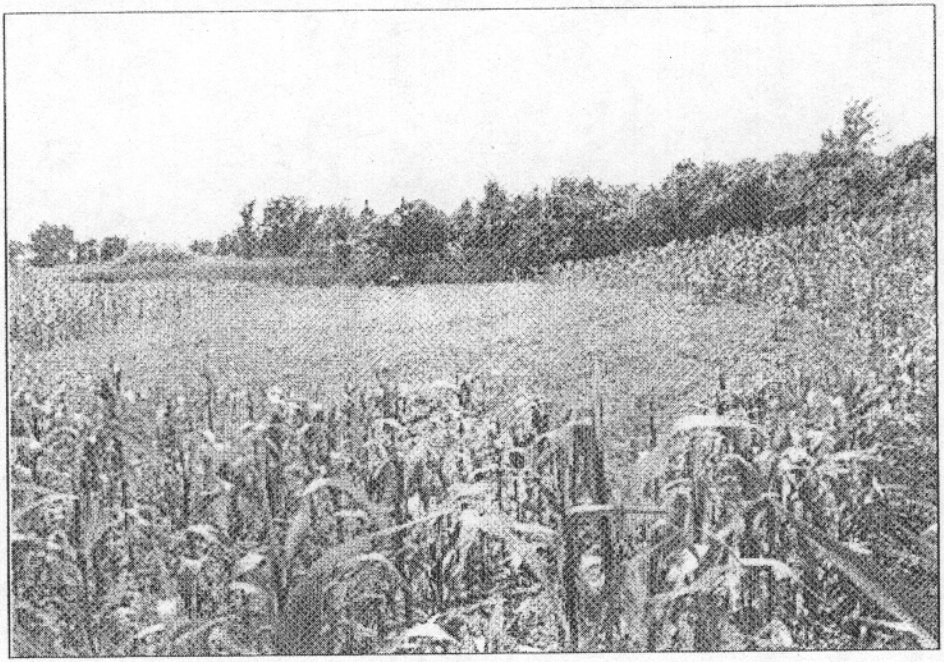

Photo 3: Looking southwest at Wetland A.

Photo 4: Looking northeast at Wetland B. Sign marks Enron gas pipeline crossing.

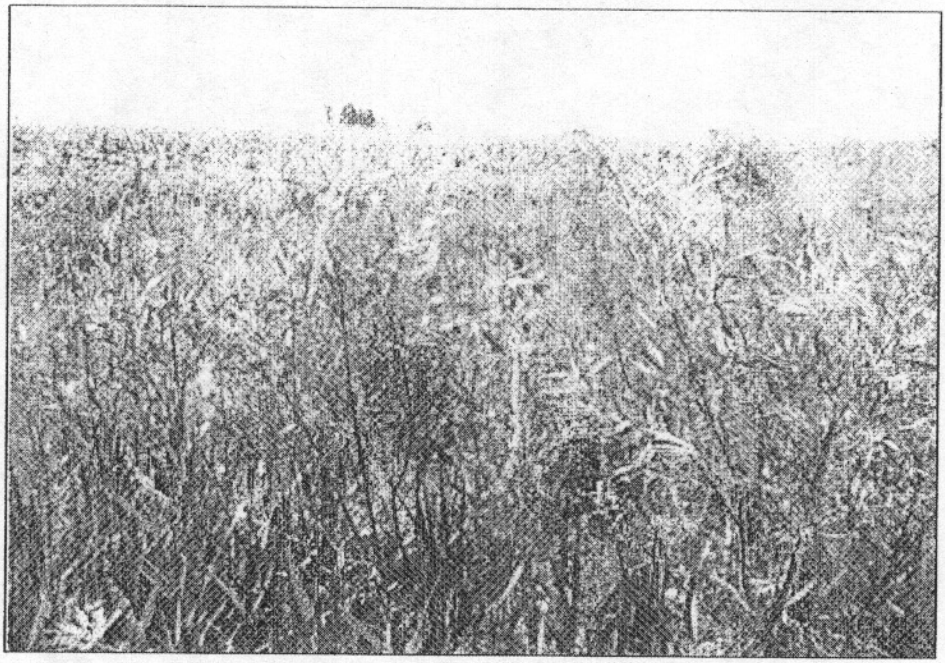

Photo 5: Looking south at Wetland B and at location of Data Point Nos. B-1 and B-2.

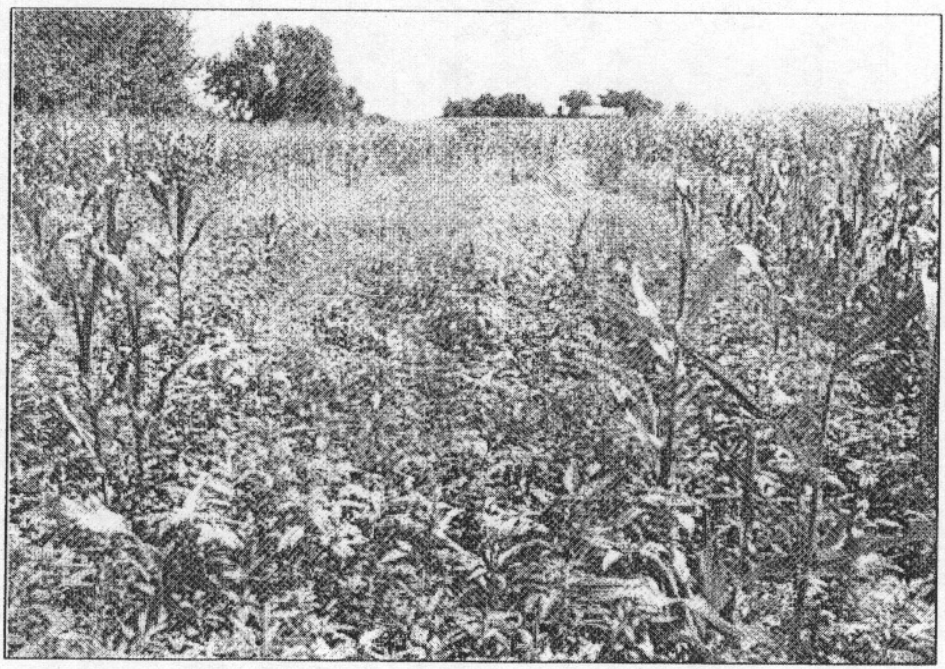

Photo 6: Looking east at Wetland C.

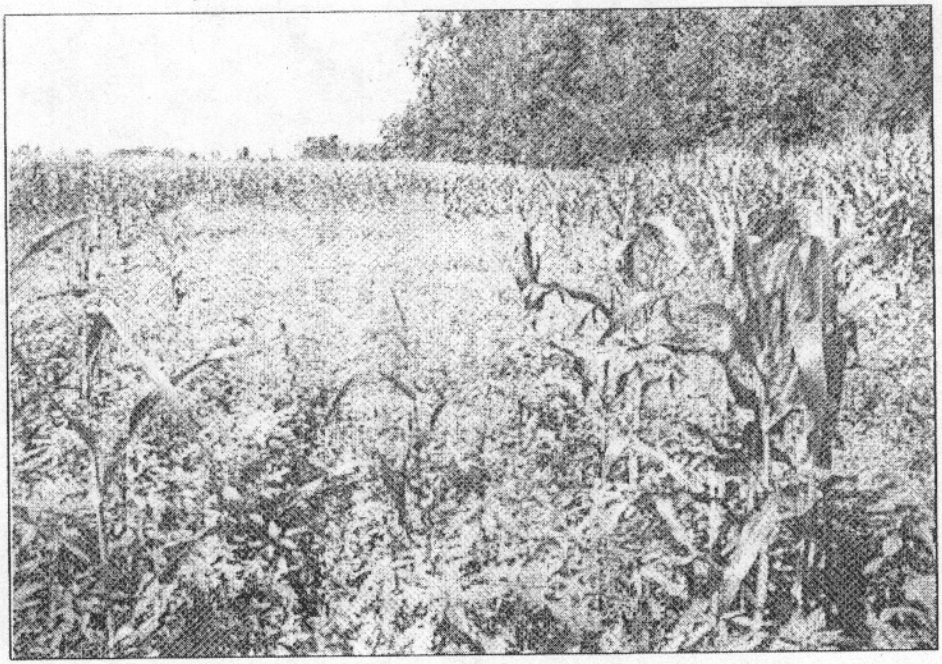

Photo 7: Looking west at Wetland C and at location of Data Point Nos. C-1 and C-2.

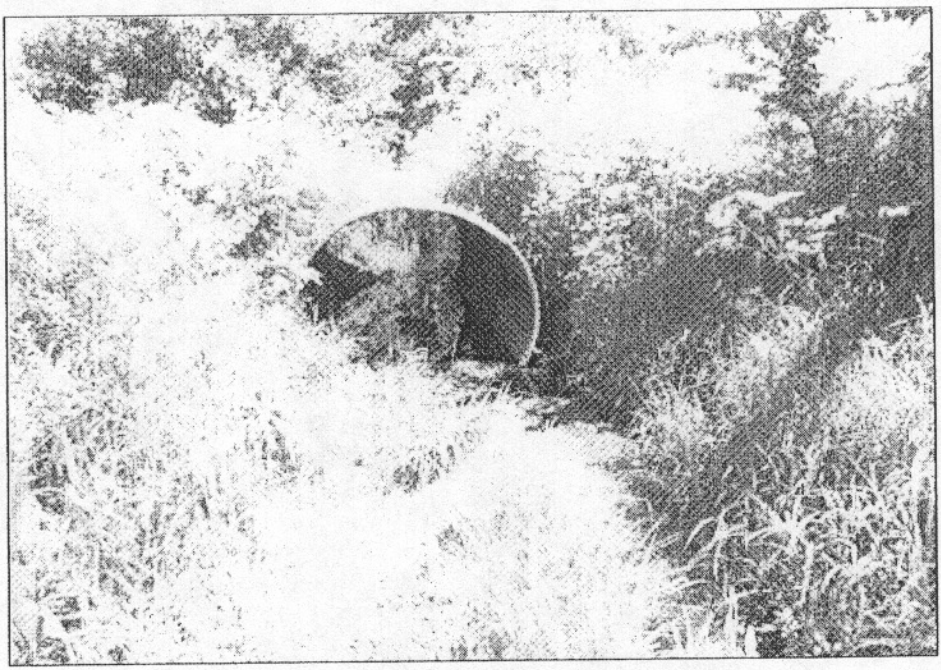

Photo 8: Looking north at culvert located on north end of Wetland D. Data Point No. D-1 taken at bottom of drainageway in foreground.

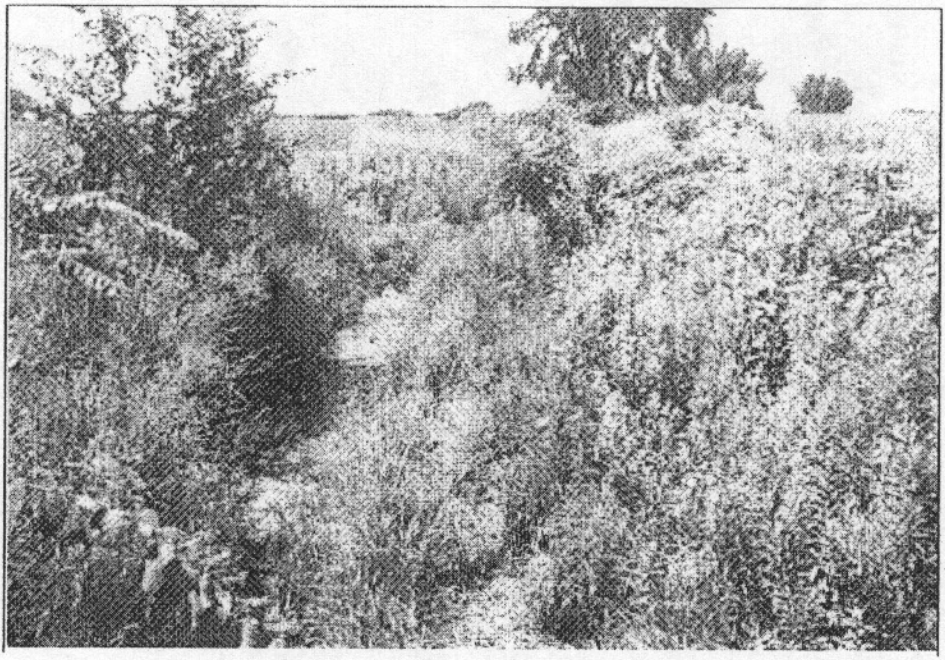

Photo 9: Looking south at Wetland D. Photo taken from south end of culvert. Note – soybean field to east and cornfield to west. Data Point No. D-2 taken at top of bank to west.

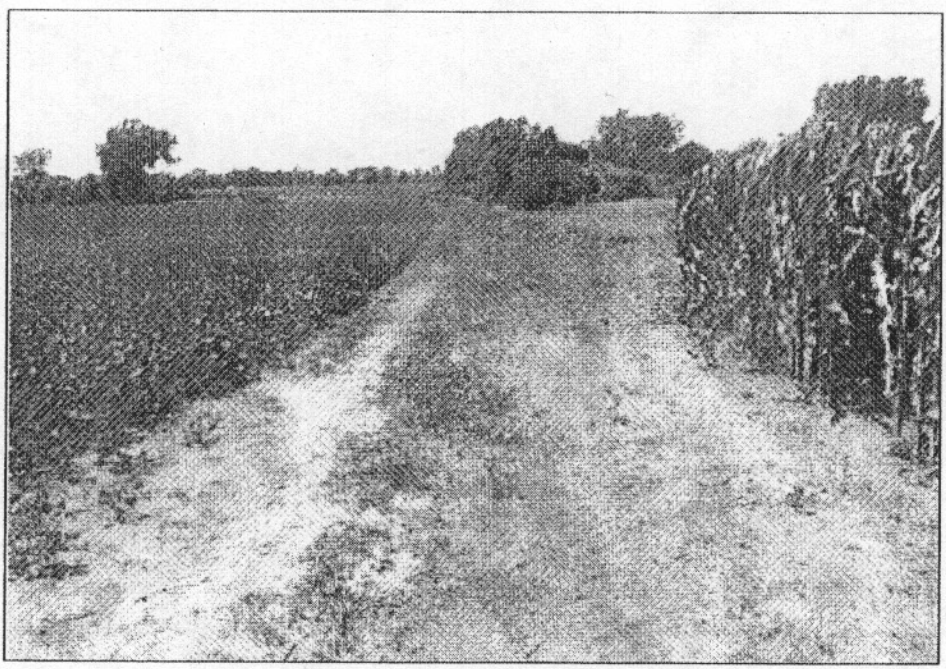

Photo 10: Looking west near north property line. Drainageway (Wetland D); Wetland C and I-35 in background.

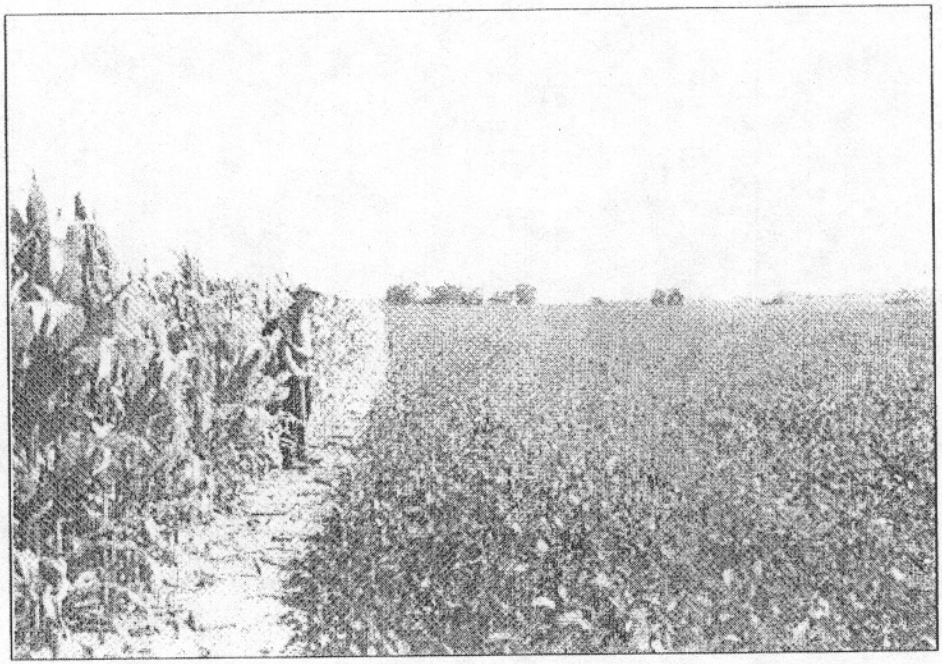

Photo 11: General site photo looking south along east side of site.

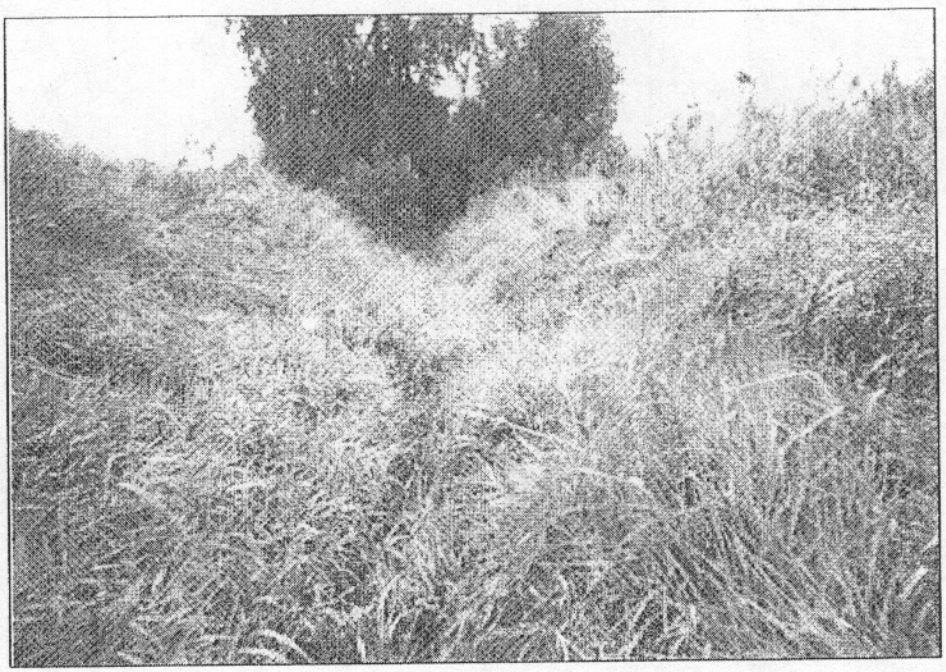

Photo 12: Looking northeast at Wetland D taken from a point southwest of the tree line near the midpoint of the drainageway.

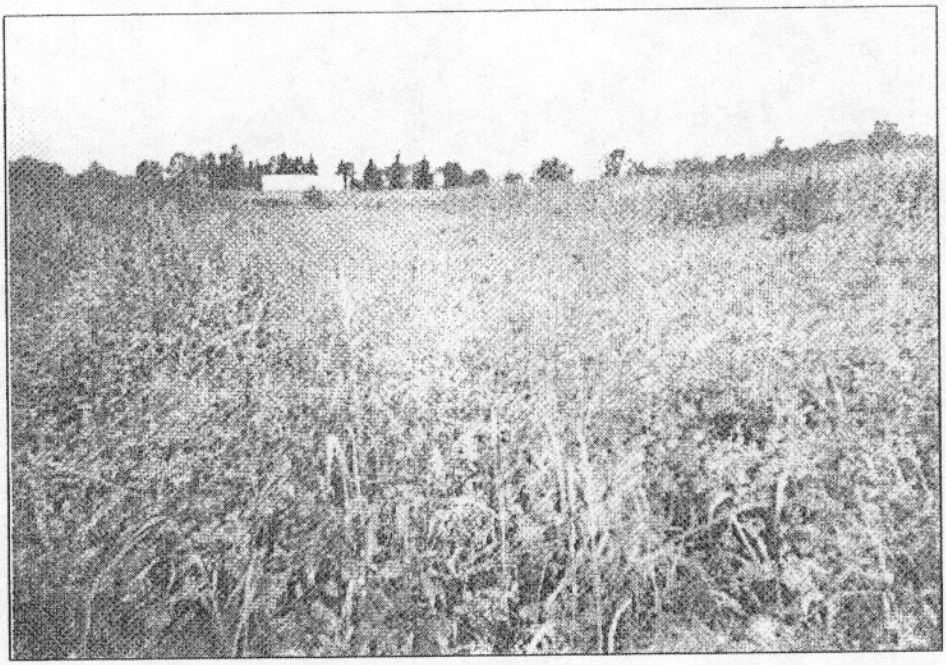

Photo 15: Looking west along drainageway downstream of Wetland A. Note I-35 in background.

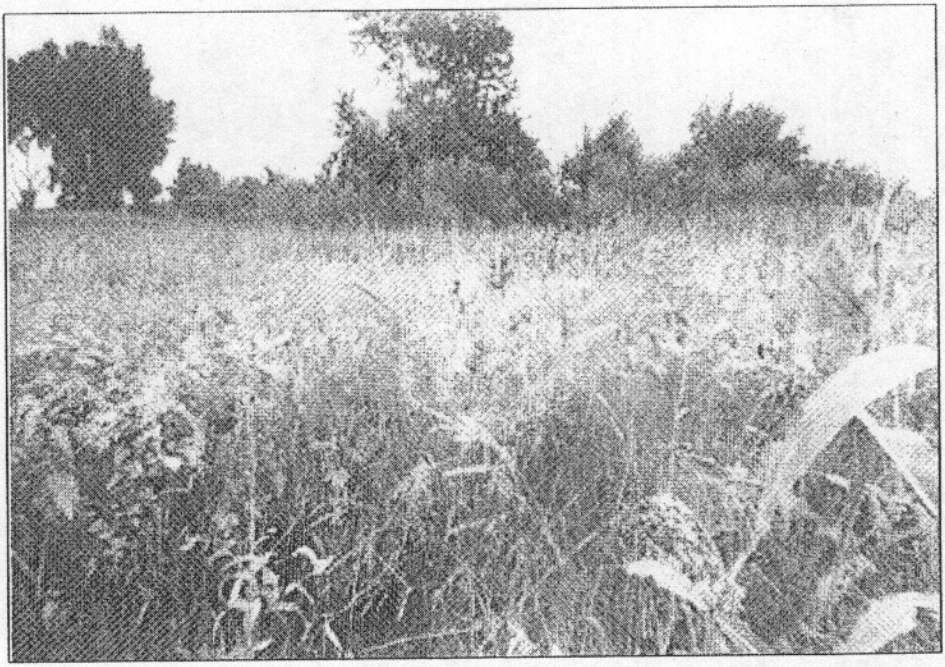

Photo 16: Looking east at Wetland E and the drainage ditch (Wetland D) in the background.

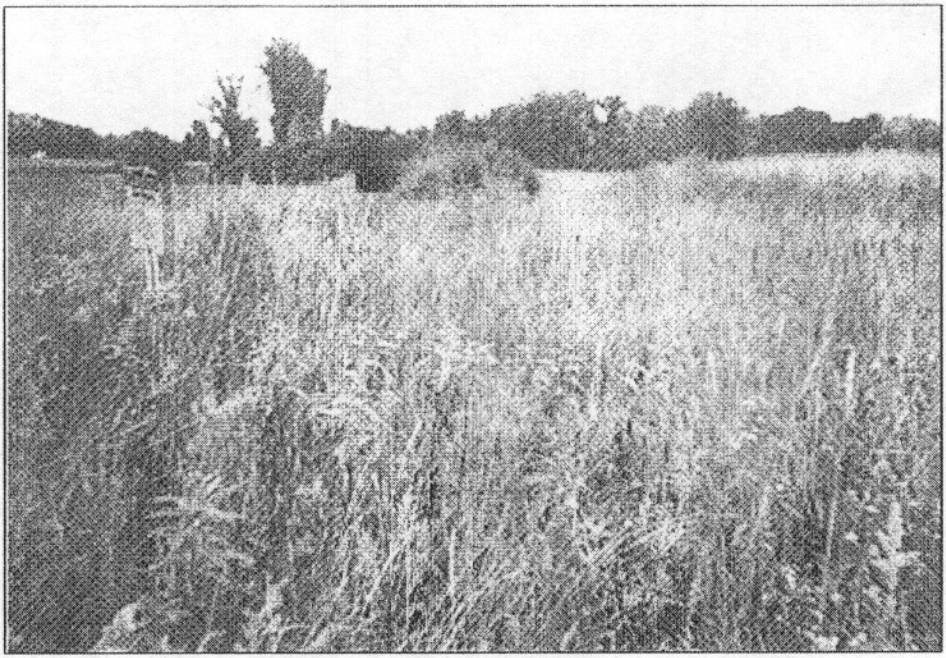

Photo 13: Looking northwest at Wetland A taken from pipeline crossing at west property line. Note I-35 to the left.

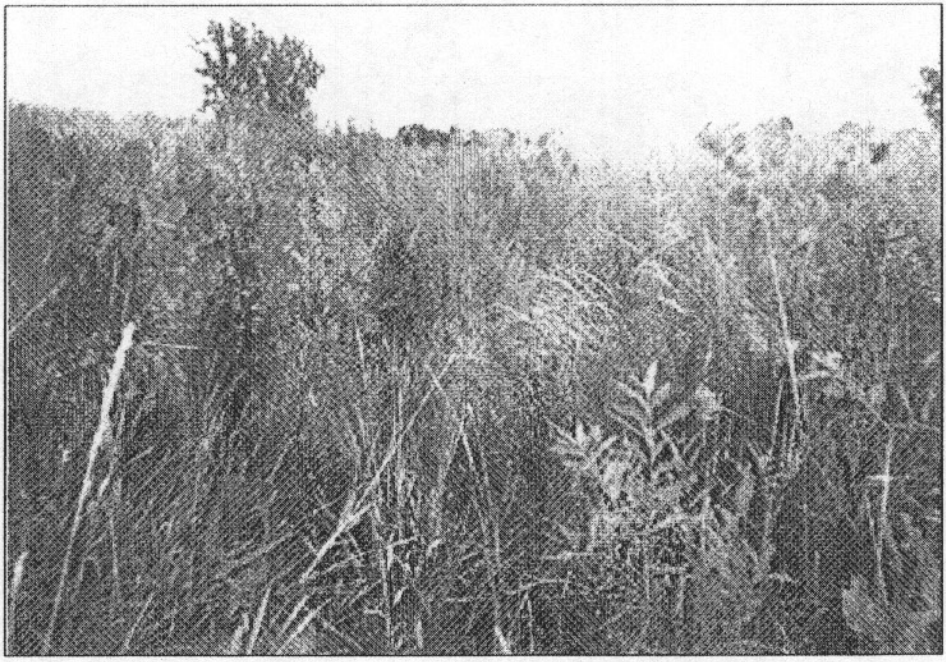

Photo 14: Looking southeast along drainageway as it leaves Wetland A.

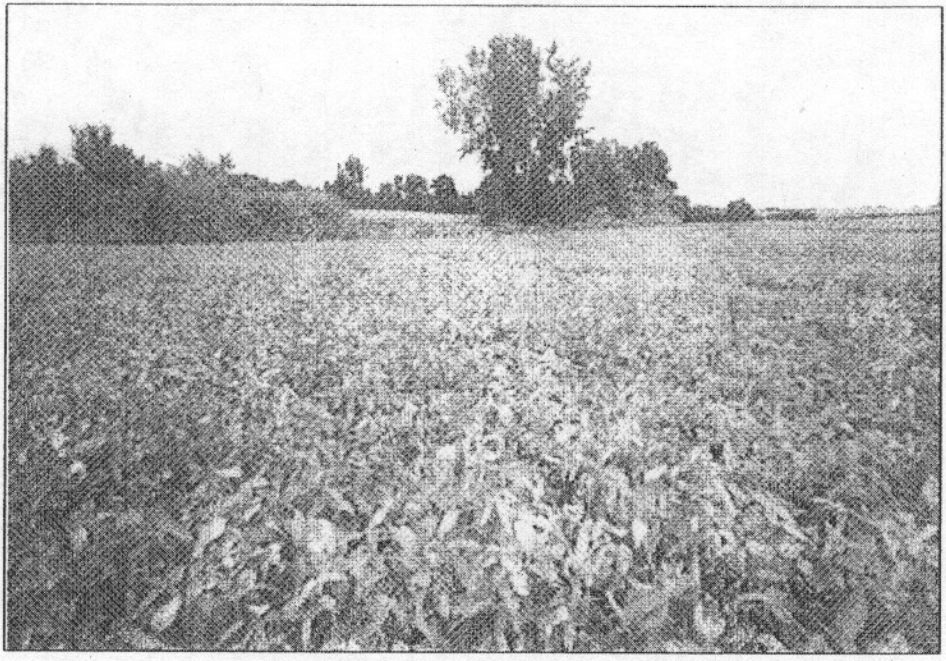

Photo 17: Looking northeast at Wetland D. Photo taken from the southwest quadrant of the subject property. Note the soybean field up to the edge of the drainageway.

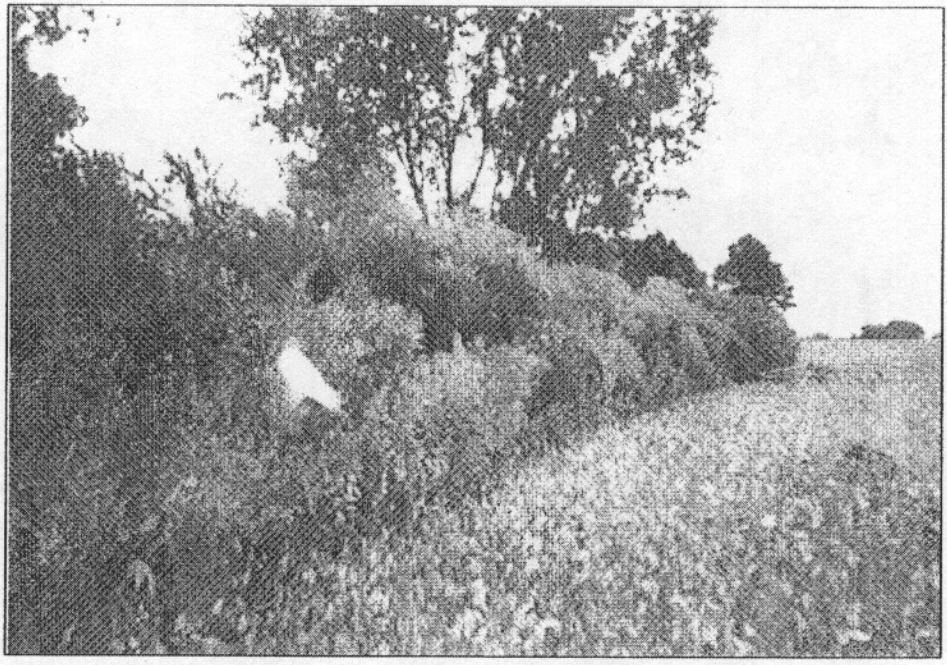

Photo 18: Looking northwest at Wetland D. Photo taken near west property line. Note soybean field up to edge of sandbar willow.

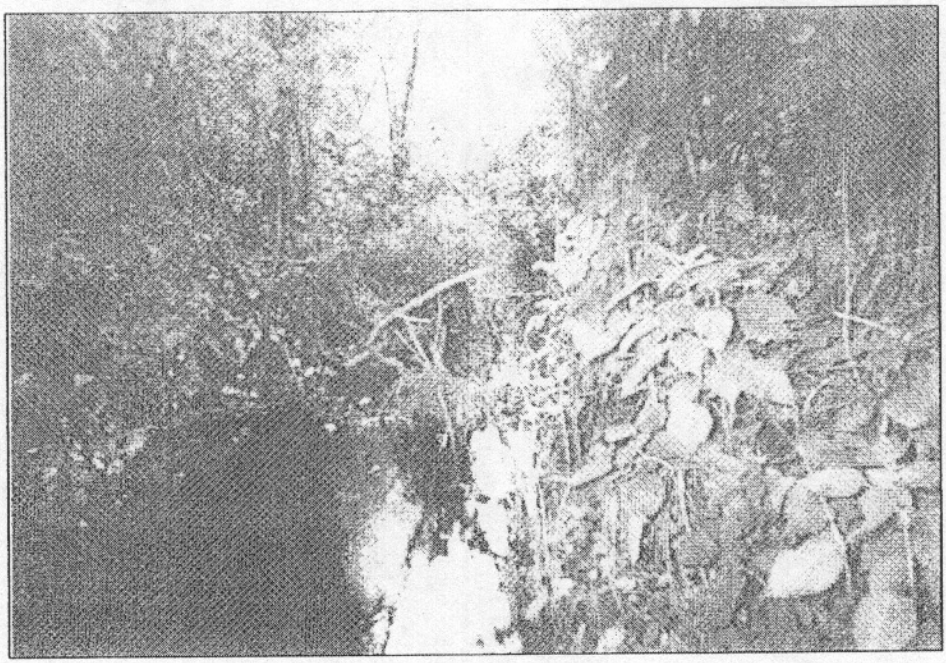

Photo 19: Looking west (upstream) at main drainageway near west property line.

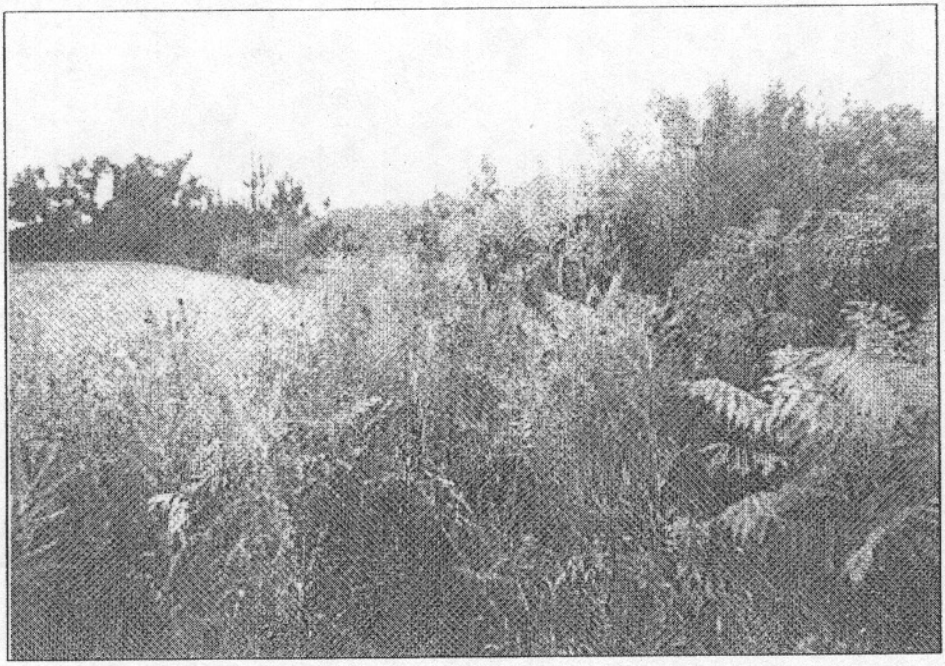

Photo 20: Looking southwest at drainageway along west property line. Photo taken near the confluence with main drainageway.

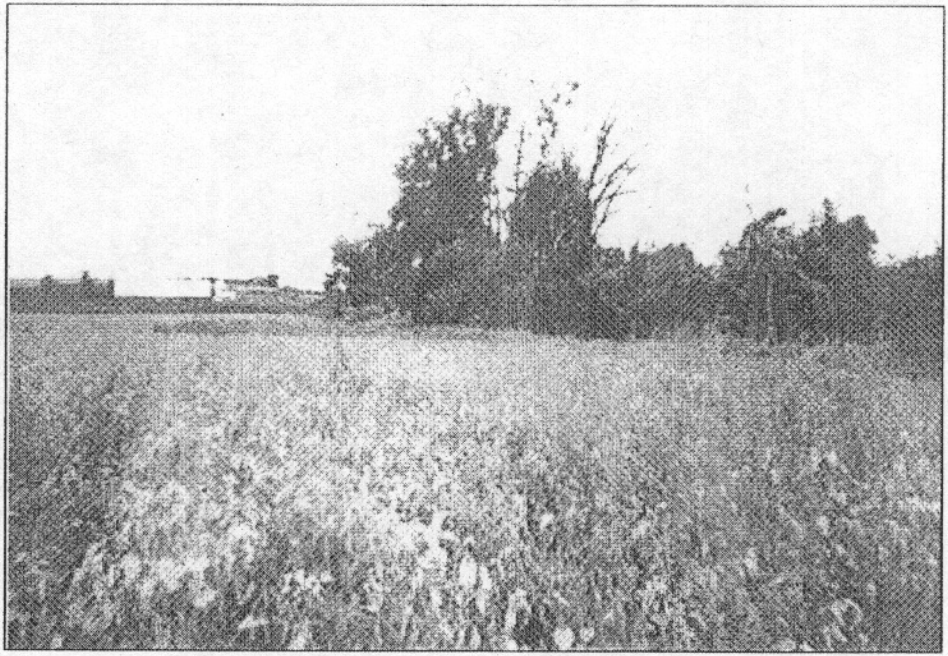

Photo 21: Looking west with drainageway along the southern property line to the right. Photo taken from adjoining soybean field to the south of the south property line.

APPENDIC C - MINNESOTA NATURAL HERITAGE and NONGAME RESEARCH PROGRAM INFORMATION

Iowa City Files
16245/Regulatory
Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Twin Cities Field Office
4101 East 80th Street
Bloomington, Minnesota 55425-1665

AUG - 8 2002

RECEIVED
STANLEY CONSULTANTS
AUG 12 2002
CIVIL/ARCHITECTURE

Ms. Karmen Heim
Civil Engineer
Stanley Consultants, Inc.
Stanley Building
225 Iowa Avenue
Muscatine, Iowa 52761

Dear Ms. Heim:

This responds to your letter dated July 24, 2002, requesting information on federally threatened (T) and endangered (E) species for a proposed 250 MW Combined Cycle Plant Project near Faribault in Rice County, Minnesota. The project site is located in T110N, R21W, Sec.13.

The prairie bush clover (*Lespedeza leptostachya*) (T), and Minnesota dwarf trout lily (*Erythronium propullans*) (E) are listed as federally threatened or endangered in Minnesota and documented to occur in Rice County. However, given the location and type of activity proposed, we have determined that the proposed project as described in your letter is not likely to adversely affect any federally listed or proposed threatened or endangered species or adversely modify their critical habitat. This precludes the need for further action on this project as required under section 7 of the Endangered Species Act of 1973, as amended. However, if the project is modified or new information becomes available which indicates that listed species may occur in the affected area, consultation with this office should be reinitiated.

We appreciate the opportunity to comment and look forward to working with you in the future. If you have questions regarding our comments, please call Mr. Gary Wege of my staff at (612) 725-3548, extension 207.

Sincerely,

Dan P. Stinnett
Field Supervisor

RECEIVED
S.E.I. CORALVILLE
AUG 13 2002
STANLEY CONSULTANTS
GROUP

RARE SPECIES

The Minnesota Natural Heritage and Nongame Research Program maintains a list of plants and animals considered rare in the state. Most of these species are protected under the provisions of the Federal or Minnesota Endangered Species acts[5] or are being considered for protection[2]. The following rare species have been found in Rice County. An asterisk (*) indicates that no recent (post-1970) observation of that species has been confirmed. Mapped locations were determined by ground inventory and historical records.

★ Plants

Green dragon	*(Arisaema dracontium)*
Sullivant's milkweed	*(Asclepias sullivantii)*
White heath aster	*(Aster pilosus)*
Wild indigo	*(Baptisia bracteata* var. *glabrescens)*
Kitten-tails	*(Besseya bullii)*
Cutleaf grapefern	*(Botrychium dissectum)*
Jointed sedge	*(Carex conjuncta)*
Davis' sedge	*(Carex davisii)*
Gray's sedge	*(Carex grayi)*
Sterile sedge	*(Carex sterilis)*
Buttonbush *	*(Cephalanthus occidentalis)*
Squirrel-corn	*(Dicentra canadensis)*
Rattlesnake-master	*(Eryngium yuccifolium)*
Dwarf trout lily	*(Erythronium propullans)*
Canada frostweed	*(Helianthemum canadense)*
Prairie bush clover	*(Lespedeza leptostachya)*
Lilia-leaved twayblade	*(Liparis lilifolia)*
Slender naiad *	*(Najas gracillima)*
One flowered broom-rape	*(Orobanche uniflora)*
Cowbane	*(Oxypolis rigidior)*
Ginseng	*(Panax quinquefolium)*
Rough-seeded fameflower	*(Talinum rugospermum)*
Valerian	*(Valeriana edulis* ssp. *ciliata)*

♦ Animals

Birds

Upland sandpiper	*(Bartramia longicauda)*
Red-shouldered hawk	*(Buteo lineatus)*
Acadian flycatcher	*(Empidonax virescens)*
Loggerhead shrike	*(Lanius ludovicianus)*
Louisiana waterthrush	*(Seiurus motacilla)*

Mammals

Prairie vole	*(Microtus ochrogaster)*
Western harvest mouse	*(Reithrodontomys megalotis)*

Reptiles

Wood turtle	*(Clemmys insculpta)*
Fox snake	*(Elaphe vulpina)*
Blanding's turtle	*(Emydoidea blandingii)*

Mussels

Mucket mussel	*(Actinonaias ligamentina)*
Fluted-shell mussel	*(Lasmigona costata)*
Black sandshell mussel	*(Ligumia recta)*
Ohio pigtoe mussel	*(Pleurobema cordatum)*